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# East Europe Report

## ECONOMIC AND INDUSTRIAL AFFAIRS

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# EAST EUROPE REPORT

## ECONOMIC AND INDUSTRIAL AFFAIRS

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INTERNATIONAL AFFAIRS

# RATIONAL RESOURCE UTILIZATION CEMA STRATEGY TO YEAR 2000

Prague HOSPODARSKE NOVINY in Czech No 34, 1985 p 3

[Article by Otta Henys, Office of the CSSR Government Presidium]

[Text] A steady supply of energy and raw materials in the CEMA states is one of the most important prerequisites for their stable and dynamic development and for resolving their socio-economic tasks. Careful attention to these problems has, therefore, characterized CEMA ever since its formation. The program of cooperation in efficient and rationalized use of material resources through the year 2000, adopted at the recent 40th CEMA session, is the culmination of efforts aimed at a joint approach to this sphere.

A substantial improvement in the fuels and energy complex, as well as in the CEMA raw material base, occurred particularly in the seventies. Production of primary energy resources rose during 1971-1980 more than 1.6 times, oil production 1.7 times, natural gas 2.1 times, and iron ore also 2.1 times. Acquisition of fuel, energy and raw material resources, however, was accompanied by ever increasing outlays. As analyses indicate, investment demand on extraction has risen considerably in the last 10 years, while investments proper more than doubled. Transportation costs also increased.

World prices of raw materials, especially energy, also rose during the '70's, making import from third countries more difficult. Thus, not only the economic but also the political aspect of this problem has become increasingly important. Under existing conditions, it was necessary to increase radically effectiveness in the use of fuels, energy and raw materials, and achieve savings at all levels of the national economy. This requirement was emphasized at the 30th CEMA session in 1976 as one of the fundamental needs related to resolving the fuels, energy, and raw material problem throughout the CEMA community.

## Cooperative Approaches of the 1970s

Very important in this respect were the pertinent directives of the Comprehensive Program (1971) and the tasks contained in the Program of Cooperation on long-range goals designed to secure economically justified needs of CEMA

member states in basic types of fuels, energy, and raw materials until the year 1990. The cited programs were oriented not only toward acquisition of new resources but also toward savings in energy, fuels, and raw materials both in production and in communal housing. The measures specifically aimed at higher efficiency in energy-related equipment manufactured in the member states, at lowering energy and material demand in production, at introducing low-waste and no-waste technology, and at better fuel management in the production of electricity and heat, have increased the utility of secondary sources. They have also speeded up introduction of new and auxiliary energy sources and new materials as well as reduced energy, fuel, and raw material losses caused by the extraction, production, processing, transport, storage, and consumption of these new sources.

Guided by the long-term programs, improved organizational forms of cooperation in efficient and rationalized use of energy, fuels, and materials have been established.

Virtually all the permanent CEMA commissions and committees gradually began to deal with this matter. In the process of resolving problems, multi-lateral and bilateral contacts among the CEMA states were expanded and intensified.

The joint efforts of recent years have acquired a broader and more purposeful character. Party and state directives adopted in the CEMA states have been met. Related to this, comprehensive targeted programs have been elaborated, aimed at saving and more effectively using fuels, energy, raw and other materials in the individual national economies.

In order to further the utilization of untapped reserves, the CEMA meeting of October 1983 approved Main Directions of Broadening and Improving Cooperation of CEMA States in Efficient and Rationalized Utilization of Fuel, Energy and Raw Material Resources, Including Secondary ones. On the basis of this document, CEMA cooperation was streamlined especially in the following areas:

--broader cooperation in the production of energy-saving equipment, instruments and apparatus for the control of automatic regulation in thermal and electric energy consumption;

--greater utilization of production and consumption waste through the development and application of modern methods and technology to the collection, processing and adaptation of secondary raw materials;

--improved norms in fuel, energy and raw material consumption per unit of finished production, which would emulate top world parameters;

--production of semi-conductor technology to increase the effectiveness of electric propulsion, as well as production of energy-saving lighting fixtures and industrial and home electric appliances;

--saving oil products and their substitutes by devices requiring less energy, by broader application of nuclear energy, as well as by using renewable and non-traditional energy resources;

--reduction of non-production losses in warehouses, during transport and in storage through, among other things, better warehousing and crating management and more advanced techniques in loading and unloading.

Strategy for the Year 2000

The CEMA economic summit meeting in June 1984 also devoted considerable attention to rational resource utilization. The statement adopted at the meeting reads: "Participants believe that through a mobilization of individual resources and intensification of mutual cooperation, all CEMA member states can resolve the raw material, fuel, and energy problem. Toward this goal, these states will implement comprehensive measures aimed primarily at rational resource utilization, reduction of energy and material demands in production through the introduction of modern technological processes, machinery, and equipment, and through structural changes in the production and consumption of these resources."

It should be emphasized in this context that savings and rationalization measures have, generally, been highly effective. Experience shows that outlays for these measures are, on the average, 2 to 3 times lower than outlays for an equivalent increment in fuel extraction and energy production. At the same time, one percent of savings in material outlays in the whole CEMA community represents the sum of approximately 11 billion rubles.

To meet the requirements of the summit deliberations, a plan was prepared and approved by the 40th CEMA session in June 1985, called "CEMA Member States Program in Economic and Rational Material Resource Utilization to the Year 2000."

This document proceeds from the national programs and plans for rational utilization of the most important types of material resources. It was prepared on the basis of analyses, assessments, and proposals by the individual states, as well as by CEMA organs. It includes most of the measures contained in the "Main Directions, "approved by the 37th CEMA session.

The summit meeting called for significant improvement in the structure of energy and material consumption in the CEMA states. Consequently, the program focuses primarily on the following:

--common activist policy in resource and energy savings through accelerated scientific and technological progress in all elements of the national economy;

--all-around savings in fuels, energy and raw materials, as well as reduction of energy demand in the growth of national revenue;

--accelerated technological progress in the branches of the fuels and energy complex, in the mining, metallurgical, chemical and metal processing industries;

--intensified development of nuclear energy which frees a significant amount of organic fuels;

--ensuring the technological and material base for specialized and cooperative production of equipment intended for the exploitation of non-traditional and renewable energy resources, and other such pursuits.

The program will serve as a foundation for cooperative endeavor. It contains 117 concrete measures divided into 4 chapters:

I. Cooperation among CEMA member states in the development and production of new machinery and equipment which ensure rational resource utilization, and their introduction into the national economy (30 measures).

II. Cooperation in the development and application of technology for the production of modern materials and more advanced assemblies (57 measures).

III. Cooperation in the utilization of production and consumption waste (20 measures).

IV. Cooperation in the preparation of standard organizational measures, including exchange of experiences in the sphere of savings in material resources (10 measures).

Each listed measure includes stages and deadlines of their implementation based on agreements and contracts, a listing of participating state and CEMA organs, and indicators of their scientific and technological effectiveness, as well as an orientation of their realization outlays.

In the sphere of fuels and energy, for example, it is anticipated that through regulation of the intermeshed energy systems and introduction of automated management systems of energy economy in metallurgical, cellulose, paper and agricultural production, in the construction materials industry and other energy-demanding branches, propitious conditions will be created for the reduction of losses in network electricity, each 1 percent of savings amounting to 1.4 billion kWh annually. Reconstruction of aging thermal plants will reduce energy consumption by 30-40 percent. Wider utilization of secondary energy sources in metallurgical, chemical and agricultural production, in transportation and housing, will in 1990 save more than 40 million tons of standard fuel, etc.

In addition to technological problems, the program, as we have already mentioned, deals with organizational standards in cooperation. This includes a gradual introduction of the most progressive standards for raw material and energy consumption, elaboration of the most effective incentives toward savings, and a broader exchange of experiences on rational resource utilization among the socialist states.

Great attention was devoted in the program to secondary resources. Their utilization throughout the socialist community must by 1990 achieve savings of 40 million tons of standard fuel in that year.

There will be better utilization of waste in metallurgy, the chemical, wood processing, consumer and food industries, as well as in many other industrial

branches. The program also calls for maximum exploitation of those types of waste matter which have hitherto been virtually neglected, since there is a lack of special processing methods and equipment designed for this purpose.

The implementation of the program is guaranteed by the individual states, as well as CEMA organs. For this purpose, the committies and appropriate CEMA permanent commissions will prepare and discuss work plans, agreement proposals, implementation deadlines and other conditions of cooperation in the prescribed terms, along with precise delineation of mutual commitments of the parties (including in production).

Realization of the planned measures is also ensured by their inclusion in the plans of socio-economic development in the national economies during each given period.

The approved program is open-ended and the CEMA committee for cooperation in material and technological procurement will be preparing its addenda on the basis of proposals from the individual states and CEMA organs, for approval by the Executive Committee.

The CEMA countries' program of cooperation in rational resource utilization to the year 2000 is an important instrument. It combines the respective national programs, supplementing them by joint measures. It can be viewed as a new collective step in the resolution of the economic and rational utilization of material resources, which in the strategy of accelerated intensification of the CEMA states' economies holds a very important place.

9496
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## COMPREHENSIVE R&D PROGRAM OF CEMA COUNTRIES DISCUSSED

Prague HOSPODARSKE NOVINY in Czech No 37, 1985 p 3

[Article by Zdenek Homolka, State Commission for S&T and Investment Development: "Achieving Foremost Positions:]

> [Text] The CEMA economic summit meeting held in June 1948 adopted many conclusions on further development on multilateral S&T cooperation among member states. The most important of these was the decision to elaborate a Comprehensive Program of S&T Cooperation of Member States During the Next 15-20 Years. Meeting participants emphasized that maximum acceleration of S&T progress is a basic element in the current economic strategy of member states and CEMA as a whole. Preparation of the program must, therefore, be accorded appropriate attention, especially since it is not, and objectively cannot be, a simple matter. Due to the extraordinary importance of this document, we bring basic preliminary information on it, bearing in mind that the formulation process of the program is not yet finished.

At a CPSU Central Committee meeting in March 1985, Mikhail Gorbachev stated: "It is our duty to achieve within a short period of time a leading position in science and technology; we must reach a very high world position in social labor productivity."

Even in the opening phase of preparations, the CEMA Committee for S&T Cooperation, charged with elaboration of a proposal for the comprehensive program, determined that this proposal will have a time frame of the year 2000, and that it will contain complex automation of production, accelerated development of nuclear energy, development and mastering of new technologies, and development of biotechnology and biotechniques.

### Substance

Based on individual states' proposals prepared in international collectives of scientists and specialists in the five main directions and assessed at a consultation of plenipotentiaries, the CEMA committee at its 31st Session in December 1984, selected for further elaboration 28 primary problems and 133 secondary

problems. From this selection we can draw the preliminary conclusion that the program substance in the individual directions will be approximately as follows:

1. Computerization of the national economy will include development of a unified electronic parts base, research and development in the sphere of electronic scientific instruments, development of computer technology in the systems of electric and postal communications, radio and television.

2. Complex automation of production will contain primarily research and development of automation equipment, development of automated projection systems, management of technological and production processes, and development of flexible automated production complexes.

3. In the development of nuclear energy we anticipate improvement of energy blocs with reactors of the VVER type, development and mastering of nuclear source production for heat supply, research and development of fast reactors, thermo-nuclear synthesis and methods of transport and disposal of radioactive waste.

4. In the sphere of new materials and technologies, there will be research and development aimed at the application of new metal materials, their alloys, production technology, and at polymer, ceramic and composite materials.

5. In biotechnology and biotechniques, there will be research and development of the application of biotechnoligies in plant and animal production, veterinary medicine, as well as biotechnologies for health care, for example, production of hormones, proteins, development of new antibiotics, etc.

Realization

In the discussion of the Comprehensive Program preparations, there was also evaluation of the joint proposal by the International Research Institute for Management Problems and the CEMA Secretariat for the program's envisaged structure and for the management mechanism of its implementation.

It is anticipated that the program will become the basic international pre-planning document. It will combine the main long-term intentions of CEMA member states' S&T policy, and the aims of mutual cooperation in their implementation. The Complex Program will contain joint operations and measures in the spheres of science, technology and production, along with concrete tasks and deadlines for their realization. Most important in this respect is the ensuring of effective interlinkage of S&T cooperation with production cooperation on the basis of cooperation in the unbroken cycle of research--development--production.

Realization of the Comprehensive Program for S&T Progress should be considered in close linkage with coordination of economic policy and coordination of the member states' economic plans. To arrive at this stage, responsibility should rest jointly on the CEMA committees for cooperation in planning and for S&T cooperation. They should jointly manage the Comprehensive Program, possibly setting up a new joint organ for this purpose.

In order to ensure good management of the program, it has been proposed that -- based on appropriate interstate agreements -- an intergovernmental commission for each of the program's five main categories be set up to become its principal management organ. Each of these five commissions would include a scientific and technological council, composed of specialists in all the respective scientific disciplines and production processes. A permanently-functioning 'apparat' of each intergovernmental commission would be the so-called principal organization. In cases where more than one principal organization is needed within one of the categories of the Comprehensive Program, due to the magnitude of the assigned tasks, the function of a working 'apparat' in each intergovernmental commission could be performed either by the appropriate department of the CEMA Secretariat or one of the specialized international organizations of the CEMA member states.

The merit of the Comprehensive Program for S&T Progress should lie mainly in the achievement of a truly complete understanding of the development of cooperation among CEMA member states. To reach such complex understanding, it will be necessary to elaborate simultaneously a unified concept of coordinated S&T policy in these states.

In drawing up concepts we must proceed from CEMA's position and goals in the world economy, the principal directions worldwide S&T advances, and from their application under conditions of CEMA and the world socialist system, with the goal of gradually building within CEMA a center for worldwide S&T progress. Such a concept must become the foundation in the selection of individual state proposals to be included in the Comprehensive Program.

Framework Agreements

Successful realization of the program also requires a more precise elaboration of many questions in the economic and legal problem areas. It will be necessary to complete in specific form a statue on the jurisdiction and responsibilities of the joint organizations managing and ensuring the implementation of the program. Next, we must specify methods of control, evaluation and funding in individual projects, etc. For example, we must consider the desirability of joint funds for S&T progress, funds for design and projection, etc. Thought must also be given to problems of responsibility and guarantees in the maintenance of quality, technological level and desirable production volume.

At the 39th CEMA Session in October 1984, Lubomir Strougal stated the following: "We believe it vital for the Executive Committee to ensure that the proposed Comprehensive Program be accompanied by a set of measures leading to its consistent implementation, especially in its relation to cooperation in the production sphere. Preparation of the program is not taking a course devoid of problems."

It is clear that assessment of results must be conducted independently of the organizations responsible for the implementation of the program. This aspect should be dealt with by the International Institute for Quality and Technological Level, which should control and evaluate technological levels and

results achieved, especially in the material sense. The Institute would operate directly under the Council of the Comprehensive Program for S&T Progress.

It is also anticipated that the program will be adjusted and made more specific in five-year periods (always a year before the opening of five-year plan coordination), to make sure that is is consistently in accord with new social, economic and S&T findings and in harmony with the most recent trends in world science, technology and production. It will also be always renewed for five years, so that its character of a long-term pre-plan document is permanently preserved.

In fitting the program into the medium (five-year) and short-term implementation plans of cooperation, the method of targeted program planning will be consistently applied, in line with the document "Organizational, Methodological, Economic and Legal Principles of S&T Cooperation Among CEMA Member States," which was updated in 1984. Key tasks of the program should also become an integral part of the "Agreed Plan of Multilateral Integration Measures of CEMA Member States," as early as in the 1986-1990 period.

In October 1984, Nikolai Tikonov wrote in KOMMUNIST the following: "Preparation of the roof agreements based on the Complex Program will make possible a more rapid transition to concrete action, and concentrate resources in key branches, ensuring a cardinal rise in labor productivity, maximum resource savings and a permanent growth in production quality. Elaboration and consistent realization of such agreements constitutes the main task in the current stage of socialist integration.

It was emphasized at the CEMA economic summit meeting that an important task in the implementation of the program's provisions will be a confirmation of agreed cooperation in the individual priority programs through the conclusion of appropriate interstate and inter-branch agreements. Related to them should be the contracts of cooperating organizations on S&T cooperation, conduct of research and development work on commission, on specialization and cooperation in production, contracts for machinery, equipment and instrument delivery, as well as contracts on third market cooperation. This should establish a unified complex of contractual guarantee for the agreed S&T and economic cooperation, which significantly increases participants' responsibility for adopted pledges and guarantees successful implementation of the program.

Principal Organizations

The so-called principal organization will, in line with resolutions of the summit conference, be dealing with important tasks in the system of cooperation cited above. It will ensure a high level and continuity of cooperation in the cycle of "research -- development -- production," directly among the cooperating organizations of the research and development base and the production sphere. In this respect, the 31st Session of the CEMA Committee for S&T Cooperation already approved appropriate measures. Among other things, it was decreed that:

--these organizations will be responsible for the elaboration and implementation of concrete tasks stemming from the agreed programs of cooperation, beginning

with research, through development, all the way to introduction of S&T achievements into production;

--a principal organization may be any national or international organization which represents a legal entity, while simultanously possessing the required material and technical base, highly qualitied personnel, and other necessary prerequisites for successful operations in the respective disciplines of science and technology;

--the basic task of a principal organization is to ensure, in accordance with contracts concluded with customers and producers in the CEMA member states, development of prototypes of machines, equipment, instruments, material samples and other industrial products, including modern technological processes and their production at the top world level. The principal organization must also provide technical assistance to customers, be they production enterprises, associations, or combines, in the installation of S&T achievements in production;

--the funding of research, development and other work performed by the principal organization can come from its own assets allocated for joint purposes or from the customers and producers. In all cases, bank credit may be used for this purpose.

Organizations of our research and development base, as well as our economic production units participating in cooperative implementation of the Complex Program, will during the negotiation of and conclusion of agreements on S&T cooperation, proceed mainly under law no 42/1980 on economic contact with foreign countries.

The communique on the consultations of Central Committee secretaries for economic affairs of the communist and workers' parties of the CEMA member states, held in Moscow in May 1985, included the following: "Participants in the consultations recemmended accelerated preparation of the Comprehensive Program of S&T Progress, and preparation of concrete agreements on its implementation. They also recommended that the Central Committee of the fraternal parties devote more attention to and provide control of this activity."

At the present time, there is intensive work aimed at the final determination of the substantive content and goals of the Comprehensive Program. This effort, under the five main directions of the program, is being carried out in international collectives of specialists, led by Academician E.P. Velikhov (electronization), Professor A.F. Kamenev (complex automation of production), Academician A.P. Alezandrov (nuclear energy), corresponding member of the USSR Academy of Sciences V.M. Kudinov (new materials and technologies), and Academician J.A. Ovchinnikov (biotechnology and biotechniques). Concurrently, there is work on the elaboration of a definitive proposal for systems of management, planning and contractual confirmation of cooperation in the realization of this program.

The final proposal for the Comprehensive Program of S&T Progress in the CEMA Member States to the Year 2000 should be ready for discussion in the fall of 1985 at the 33rd Session of the CEMA Committee for S&T Cooperation in Moscow.

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DEFICIENCIES IN STUDY, DESIGN WORK FOR MINES

Tirana BASHKIMI in Albanian 1 Aug 85 p 1

[Article: "The Most Rational Exploitation of Mines Requires a Standard For Study-Design Work"]

[Text] The achievements in the field of mining, having as a foundation the tireless labor of miners and technical engineering personnel, are linked also in large measure to the study-design work of institutes and technological bureaus working for this same end. The completion and implementation of several studies for improving the technology of exploitation at the Gjegjan and Guri i Kuq mines--opening pits more than 500 meters deep and deepening them with a parallel system--have cut in half the losses and impoverishment of ore in the Gjegjan mine and doubled the productive capacity in the Guri i Kuq mine. Good studies are also being conducted on increasing production at the Tirana coal field, for the deep exploitation and increasing the productive capacity at the Bulqize mine.

But despite all the good work in this direction, once again during the seventh 5-year plan they did not succeed in covering a specified range of disturbing problems, and the effectiveness of part of the research work was low. In regard to these problems the 12th plenum of the party Central Committee set a series of duties for the organs of power and of the economy, for the cadres and specialists of the mines--particularly the chrome mines--who have been responsible for shortfalls in fulfilling the tasks of the plan. Of the 19 studies designated by the Ministry of Industry and Mines and the Ministry of Energy which were in the plan of this 5-year period, only 9 were completed, and even these were late. The study on the mechanization of mines, which was of special importance, was below the required standard. There was nonfulfillment also in the research subject matter of the Valias, Bater, Bulqize enterprises and others. As a consequence these nonfulfillments have caused difficulties in the production targets. It was emphasized in the plenum that the workers, managers and communists in the Bater and Bulqize mines, likewise the directors of the respective ministries, must be conscientious about the uneasiness created for the economy and the foreign exchange balance by each nonfulfillment of production, both in quantity and in quality. The principal cause of the failure to execute the studies properly has been the inadequate evaluation and demand for an accounting on the part of enterprise directors and the respective directorates of the ministry. In this

direction little is done to execute the task assigned to the institutes to take steps for drawing up complete plans for opening, preparing and exploiting the mines.

In order that the effectiveness of the exploitation of mines be at the necessary level, the studies and designs must be permeated by a further development of economic thought, this to be accompanied by the execution of technical-economic studies for the development and perfection of existing technologies and the introduction of new technologies, not only to rescue some mines from ruin, but also to increase the profitability of other mines. This becomes more urgent at this time when the matter of saving is the problem of the day. But the economic aspects in the designing of mines are not treated comprehensively because of the absence of regulations on designing a task which has been dragging along 2 or 3 years in the Ministry of Industry and Mines, also the lack of standards for designing, of instructions for design estimates, of handbooks for estimating, and of methodologies for the economical handling of designs, etc.

The practice until now has shown that the prediction of the development of all operations is made by means of the program designs of mining enterprises which base them on design concepts outlined by the Institute. But the failure to draft technical designs has economic consequences and indicates that this practice must change.

These tasks are nothing but work programs for the employees of the ministry and the Institute of Economic Studies by which they seek to chart the methodology of economic profitability of the mines, and also to specify the criteria of the schedules for amortizing investments.

Increasing the effectiveness of exploitation requires that research work be evaluated more highly at all levels, including the mining enterprises, the institutes, the faculty and the ministries. The fact that the bureaus of research-design in the Bater, Bulqize, Spac and other mines do not include specialists and the absence of these bureaus in Kurbnesh and Kalimash, shows that research work at the grassroots which is of special importance is underrated. But the duties of the bureau of study-design are not only the management and development of research work at the enterprise and the detailing of projects of exploitation, but also drawing up some of the designs for small projects and for expansion, with a view to reducing the work of institutes so that they can occupy themselves with more highly skilled studies. But the more highly skilled studies come also through the better organization of study links, through the strengthening of the study-research and experimentation aspects of the institutes, in order that they may perform generalized and reliable studies, not only for the support of projects which they perform, but also for the solution of major problems, theoretical and practical in character, for the present and future development of the mines.

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## PLAN TO INCREASE OUTPUT FROM IRRIGATED AREAS OUTLINED

Sofia POLITICHESKA AGITATSIYA in Bulgarian No 16, Aug 1985 pp 13-17

[Article by Aleksandur Ivanov: "The Assignment is: 15 Million Decares of Irrigated Areas!"]

[Text] Sustained and intensive development based on the attainments of scientific-technical progress--this is the strategic goal posited for our agriculture at the February and March Plenums of the Central Committee of the Bulgarian Communist Party (1985). Achieving this requires a decisive improvement in the work on renovating the material-technical base, as well as implementing avant-garde technologies in all areas of agricultural production on a rapid and widespread basis.

The development of agriculture and the foodstuff industry is directly dependent on the condition of plant growing, on its stability and the degree of its independence from the limiting influence of certain climatic factors, drought most of all. Drought in particular, caused by insufficient and extremely unevenly distributed precipitation, to a great degree conditions the risky nature of agriculture in our nation. This is why irrigation is pointed out as the primary factor in ensuring stable and consistently high results; it not only guarantees results, it also creates the optimal conditions for manifesting the fullest effect from the other powerful factors that determine fruitfulness, such as the hybrid components, the soil and its treatment, chemical and organic fertilizers.

The significance of irrigation for the development of agriculture has always been properly valued by the Central Committee of the Bulgarian Communist Party and the government. As a result of the great concern shown for the development of agriculture and hydromelioration, during the years of the people's government the amount of irrigated land has grown from 357,000 decares to more than 12 million decares. Two thousand, one hundred and three reservoirs have been constructed, as well as 2,640 pumping stations, twenty-four thousand kilometers of canals, 17,000 kilometers of piping, and much complex hydrotechnical equipment designed for irrigation purposes. Around 40 percent of agricultural production is obtained from irrigated areas. A mighty material base worth 1.7 billion leva has been created, and this allows us, even through a series of dry years, to guarantee a normal harvest from more than 25 percent of the land worked.

At the same time, in recent years we have witnessed the growing difficulties in utilizing this huge national resource. These have arisen as a result of a lack of correspondence between raised expectations placed upon irrigation as a result of the intensification of agricultural production and the limited technical capabilities of the irrigation systems built in the past. Introducing a new structure of crops in which the high-yield hybrids and the congestion of favored crops, a... use of the land through sowing preliminary, secondary, and intermediary crops have all come to predominate, has sharply raised the need for water at each location, which has led to a large number of irrigated areas not having sifficient water security.

For this reason more than 50 percent of the irrigated areas are experiencing a lack of water, which limits the possibilities for future intensification in the use of the land and creates serious difficulties in the organization of irrigation. These difficulties are compounded by the lack in development of irrigation equipment here, and this has led to a serious lag in the degree of irrigation mechanization in comparison with the other agricultural processes.

Despite the measures taken to overcome these difficulties and the success noted in the first years after the 12th Congress of the Bulgarian Communist Party, the breakthrough still has not come.

Evaluating the great significance of irrigation and its decisive role in the future intensification of agricultural production, on 20 June 1983 Comrade Todor Zhivkov introduced at the Politburo of the Central Committee of the Bulgarian Communist Party a detailed report on the condition of Bulgarian agricultural irrigation. Based on a profound analysis, the report points to a principally new and comprehensive approach to solving the problems of agricultural irrigation and to guaranteeing stable and highly efficient agricultural production. Based on principles in this report, a comprehensive, goal-oriented program for the development of agricultural irrigation in the Bulgarian People's Republic up to 1995 was developed and affirmed by the Council of Ministers.

The program's basic goal is a sharp increase in the production of grain and fodder, achieving and maintaining high and stable rates of agricultural development. To reach this goal we foresee a rapid restructuring of the existing irrigation and drainage systems, in order to ensure sufficient water to meet the new requirements for intensive utilization of all irrigated lands, to drain 1.6 million decares of swampland, and to increase irrigated areas to 15 million decares.

By carrying out this program, the overall plant growing productivity from irrigated areas will increase to more than 5 billion leva. Ensuring sufficient water for irrigated areas will provide the opportunity to bring about sufficient changes in the structure of the crops raised. The share of corn among grains will increase from 17.6 to 32 percent. The areas planted in corn, alfalfa, soybeans, and sugar beets will increase by 1995 by 3.9 million decares. It will be possible to cultivate second crops of barley in all areas, and of wheat in 50 percent of the areas. Through the universal

introduction of second crops and preliminary crops, the coefficient of compacted utilization of irrigated areas will reach 1.35.

At the end of this period, the irrigated areas will produce more than 4.5 million tons of grain, 3 million tons of technical crops, 2.5 million tons of vegetables, 800,000 tons of fruit, and 15.7 tons of liquid and grass fodder.

Despite certain difficulties in securing resources for this program, which are caused by the rapid rise in the volume of hydromeliorative construction, the Vodno Stopanstvo State Economic Trust has overfulfilled its 1984 plan and provided the national economy with 180,000 decares of new and 274,000 decares of reconstructed and modernized irrigated areas and constructed drainage systems for 86,000 decares of swampland. During 1985 the Trust is carrying out 40 percent more construction and installation work, such that by the irrigation season 49,000 decares of new irrigated areas were provided.

Along with the expansion in irrigated areas, great attention is being paid in the program to the universal implementation of technical progress and top achievements in the area of agricultural irrigation. We foresee gradual automation of water distribution, perfecting existing technologies and implementing new ones for irrigation. A fundamental place in the new construction and reconstruction of existing irrigation systems will continue to be occupied by sprinkling. It will find its broadest application in the perfected models of broad-coverage sprinkling technology, belt, console, and other contemporary sprinkling machines. Drip irrigation will be developed at a faster pace. In 1985 20,000 decares of land are being fitted with drip irrigation.

Great attention is being devoted to the mass implementation of improved gravitational irrigation, thanks to which a severalfold increase in the productivity of labor has been achieved. This is a great reserve for our nation, since over 50 percent of the irrigated areas are supplied by gravitational irrigation. During the last few years, areas irrigated by using flexible piping and other technologies for improved gravitational irrigation have increased from 290,000 to 3 million decares. Specially high results have been attained in the Plovdiv Okrug, where thanks to these innovations the average productivity of labor has increased so that the number of irrigators needed has dropped by around 1,500!

Increasing the productivity of irrigators is now a major problem being addressed by the specialists at the Vodno Stopanstvo State Economic Trust and the Institute for Hydrotechnology and Melioration, since a shortage of irrigators has a quite palpable negative effect on the efficient use of the hydromeliorative resources that have been built up. In order to resolve this problem, work is proceeding in three areas: automating the basic equipment and water distribution, introducing highly productive irrigation technology, and raising the level or technical and professional preparation of the irrigators.

During the last few years results have been achieved in three directions, but despite these results, they are still not a part of mass practices, though they provide a basis for the certainty of attaining the aims posited by the program. The technical preparation that has been carried out, as well as the positive experience from work at the automated pumping stations will permit a rapid growth of automated pumping stations in the next few years. In cooperation with scientific institutes on automation in the USSR and on the basis of our own developments, water distribution is being automated for great areas in the Ruse, Razgrad, Pazardzhik, and Plovdiv Okrugs. Through automation of water distribution, we will save large quantities of water and electric energy, and conditions will be created for a sharp improvement in the organization and productivity of labor.

A basic problem in trying to raise the productivity of labor and overcome the shortage of irrigators is supplying the irrigated areas with highly productive technology. In order to solve this problem the Ministry of Machine Building, in close cooperation with the Vodno Stopanstvo State Economic Trust, is conducting studies and preparation for production of modern irrigation machines with broad coverage here. The mass production of these highly automated machines with a seasonal productivity of 1,600-1,800 decares will offer the possibility of attaining the planned average productivity of labor by 1995 of 85 decares per shift, which will raise the present rate fourfold. Of course for this it is necessary to train cadres with high technical qualifications. This relates not only to the future, this is also a basic task for today. Because of the ignorance of technology and the lack of professional experience and knowledge, the projected capabilities for irrigation technology are not being met. An indicative example is the excellent master irrigator Lazar Drebchev from Plovdiv, who, thanks to his outstanding technical training and mastery of his profession to perfection, uses gravitational irrigation on 100 decares per day, a result which only a small portion of our most highly productive Fregat sprinkling machines attain.

This example and many others from the hydromelioration brigade at the agroindustrial complex in Vidin, the mechanics at the agroindustrial complex in the city of Levski and others show that there are still many reserves for the rapid growth in the productivity of labor on the basis of the present technology and the competent application of irrigation technologies developed by the Institute for Hydrotechnology and Melioration and other institutes.

The results attained in irrigation in the first 6 months of 1985, in comparison with 1984, and previous dry years, show that the winter season was fully utilized for preparing the equipment and irrigators. Especially heartwarming is the rise in number of these in okrugs that had traditionally lagged behind until last year, such as the Pleven, Mikhaylovgrad, and other okrugs.

Special attention is being paid in the Pleven Okrug to corn which is raised by intensive technology. The necessary irrigation was carried out, and all the preconditions were created for having significant areas with production of over 1,200-1,300 kilograms of corn per decare. The Pleven Okrug now has average results and still lags behind the other okrugs with a

tradition of irrigation, but the present results there well illustrate the widespread transformations in the area of agricultural irrigation, which in the last few years have covered the entire nation. These transformations are extremely significant for the future of all of our agriculture. They are directed toward ensuring the most effective use of 15 million decares of irrigated areas, which our nation will have at its disposal in 1995. But perhaps this might come about even sooner, since the instructions for developing additional resources, in addition to the program adopted, through rapid construction of irrigation systems in Dobrudzha, with the Danube River as a source of water, have already been given.

12334
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BULGARIA

EDITORIAL DWELLS ON SPECIAL AID TO FARMERS

Sofia KOOPERATIVNO SELO in Bulgarian 18 Sep 85 p 1

[Article by Georgi Avramov: "Thinking about Tomorrow at a Difficult Time"]

[Text] The well-known maxim that a person knows himself at a difficult time applies with the same force to a social system. New evidence of this can be found in the measures taken by the Council of Ministers to compensate for losses caused by natural calamities.

The conviction that the government has found the right way out of the difficulties is now penetrating even deeper into the consciousness of the people. Thus this ordinance has been received with understanding, not only because the corrected prices do not affect products of primary necessity, but also because even a higher price for electric power is dictated by the need to use it efficiently and thriftily, so that during this winter and in the following year everyone can obtain some relief. But in order to attain this goal, everyone must bear the burden of shortages, and everyone without exception must make his contribution in the effort to overcome these difficulties.

In this way the Council of Ministers' ordinance is an expression of the principle of social justice that is characteristic for our socialist system. On the other hand, it responds in a true sense to thinking about the long-range interests of every member of our society.

For these reasons, the measure of raising prices, which is always connected in some way with a certain amount of unease and a feeling of insecurity among the populace, is being accepted calmly this time, with a consciousness of stability, despite the temporary difficulties. Since our socialist state can weather such heavy blows caused by nature, which would have been insurmountable a few decades ago, since it takes on the heaviest burden and will not permit palpable jolts in satisfying the nation's basic needs, it can look to tomorrow with certainty. The guarantee is the stability of our economy, which is characteristic for a country that is building a developed socialist society.

And something else, perhaps the most characteristic trait of the measures adopted by the government, guided by the party's Central Committee: without

any exaggeration, we can say that these measures display most of all a tremendous concern for agriculture, which has suffered so much from the natural calamities.

This fundamental distinguishing feature of the ordinance reveals something else which is quite substantial. There was a time when agriculture took a back seat during the industrialization of the country. Hundreds of thousands of tons of products that it created provided the necessary means for constructing the production machines. It has been and still is doing much in this regard.

Today, however, when the unprecedented drought is causing serious losses, despite the tremendous efforts of the agricultural workers, they are receiving support that is extraordinary in its scope and significance. The fraternal hand of assistance is being extended by our working class in all branches of the national economy. This is a new, especially convincing manifestation of the indestructible union of workers and farm workers, the mainstay of our socialist system. The fact that agriculture is now receiving several hundred million leva, in order to ensure payment to the agricultural workers and financing of urgent economic needs in this field, which are connected with its future development, is evidence of its vitality and capacity for action. This is what we mean when speaking of the fund for assisting the agroindustrial complexes, which has been created by this ordinance.

Even greater significance is being ascribed to the National Water Supply and Agricultural Irrigation Fund. It will comprise the fundamental part of the financial means that come about as a result of the raised prices, part of the profit of economic organizations, and monies from other sources. Just this year alone 700 wells have been dug to ensure water supply to the farms, lest they experience financial difficulties. But the basic task of this national fund is to accumulate means for ameliorating construction and ensuring intensive and steady agriculture. And, what is especially important, with the creation of the national fund, the resolution of this strategic problem will truly be a matter for everyone in the nation.

The effect will be felt most directly in the measures directed toward thrifty usage of electric power, again for the farmers, for the greater the percentage of economizing, the fewer blackouts there will be at livestock breeding farms, and this will guarantee their being able to get through the winter. Despite the fact that the personal budgets of even the workers in the villages will be affected, they are accepting the latest measures of the Council of Ministers in recognition of the concern shown for them. This will undoubtedly increase the efforts to harvest the crops on time and without losses. This will mobilize them to prepare for the next fiscal year, as required by the resolutions of the March Plenum of the party Central Committee, which will guarantee future conquests for Bulgarian socialist agriculture.

12334
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UNSANITARY CONDITIONS IN BABY FOOD PLANT DECRIED

Sofia OTECHESTVO in Bulgarian No 16, 1985 p 2

[Article by Angel Dimitrov: "Ten or One Hundred?"]

[Text] The enterprise for children and dietetic foodstuffs in Svishtov is the only one of its kind, not only in Bulgaria, but also in the CMEA. There is not a Bulgarian family which has not turned to it in hope. Its products are swept from the shelves of the stores the moment they are stocked there. To have such an enterprise in one's town, trust, or ministry presumes special concerns. Unfortunately, this is not exactly how things stand.

First of all the grounds are striking, but not really the grounds so much as the warehouse. Raw materials are piled up outside, covered by tarpaulins. This is what protects them from rain, snow, wind, and dust, which is carried over from the nearby road. And baby food is made from this! Purity and sterility are the first step in this type of production. Despite this, of course within the framework of the conditions described, everything possible is being done to achieve the standards for sterility. The smallest corners are used for setting up the domestic cottages: the buildings for changing clothes, bathing, eating, etc. But these cottages are spread out, the workers have to cross the yard to get to several of them, and so there cannot be any talk of hygiene or sterility. The buildings of the three workshops are used as well for production and for storing the raw materials and for finished production. This overload, this constant shifting from place to place, inhibits the scope of the work and reflects on the price costs.

Near the fence there are trim wooden trailers of the administration. These trailers cannot be heated in the winter, and in the summer they resemble a sauna. A number of people have already fallen ill, others leave their jobs. These are the cadres that were assembled with some difficulty; they know what to do and how to carry out the work. They are counted on to clear up the sludge, in which the enterprise is presently mired. The designs for the administration-domestic building and the 4-story warehouse with a refrigerated room have been ready for a long time. They include a place for a laboratory (equipped with the latest in technology, equipment that can ensure high quality and increase the variety of production), a filtered corridor for employees to pass through, fully sterilized, into the enterprise,

having no reason at all for leaving the building during the entire shift. In addition to the designs, the means are available, the only thing missing is someone to carry them out. Both Agrostroy and the construction and installation combine in Veliko Turnovo are still finding excuses for delaying ground-breaking. We do not know precisely what these reasons are, but when we are talking about feeding our children and processing grain in a serious way, these reasons seem insubstantial. There are contrasting considerations which must not be underestimated. We have already gotten a head start; the enterprise's production is being sought abroad. Competing firms are seeking cooperation, but they are not stopping the development of their own technology. And while we are dawdling and worrying about furnishing materials for each dozen, they will overtake us and we will lose a hundredfold. Let us take on the role of leaders ourselves, when we have already put others in such an enviable position.

12334
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CZECHOSLOVAKIA

## JULY 1985 ECONOMIC RESULTS SUMMARIZED

Prague HOSPODARSKE NOVINY in Czech No 35, 1985 p 2

[Article by Eng Marie Hormannova and Eng Alena Polakova, Federal Bureau of Statistics: "July 1985"]

[Text] In the volume of industrial production our industry fulfilled 57.1 percent of the annual state plan before the end of July; 56.1 percent in construction works performed with internal labor resources; 58.3 percent in the procurement of slaughter livestock, including poultry; 51.9 percent in total imports (in FOB); 55.9 percent in total exports (in FOB), and 54.6 percent in retail sales of main commercial systems.

The growth rate of industrial production in July as well as from the beginning of the year was higher than stipulated by the state plan for the year. In July the volume of industrial production was up 6.9 percent as compared with the same month of 1984 (average daily production was up 3.5 percent) and in the period from January through July it was 3.3 percent higher than in the same period of 1984 (average daily production increased 3.9 percent). Over the 7-month period total industrial production amounted to Kcs 398 billion. Our industrial enterprises fulfilled the specifications of economic production plans in total at 100.0 percent in July and at 100.6 percent from the beginning of the current year through July.

While fulfilling economic plans, the highest rate of growth of industrial production from January through July was achieved in general engineering, garment industry and in generation of heat and power. Furthermore, electrical engineering enterprises and enterprises of the cellulose and paper industry achieved an above-average rate of growth from January through July as compared with the same period of 1984; nevertheless, these branches failed to meet their economic production plans for those 7 months.

As concerns main industrial products, the economic production plan was exceeded in material units most markedly in electric power generation and in the production of rolled materials. However, the industry did not fulfill completely regularly main indicators of economic plans from January through July. While the planned volume of production was on the whole overfulfilled, 219 enterprises, i.e., more than 25 percent of the total, failed to meet their production plans during that period; the plan of adjusted value added was not met by

250 enterprises and organizations, i.e., by about 23 percent of enterprises in the centrally planned industry which report this indicator.

Industrial production and adjusted value added increased in January through July mainly due to higher labor productivity. During that period the number of workers increased 0.6 percent against the same 7-month period of 1984; labor productivity based on industrial production was up 2.7 percent (the planned annual increment is 2.0 percent) and labor productivity in adjusted value added was up 3.7 percent.

From the beginning of the year through July sales of industrial goods exceeded economic plans in all main areas of consumption. The plan was considerably overfulfilled above all in deliveries for investment and for exports to socialist countries. Again, certain irregularities were in evidence here because during the year numerous enterprises had failed to meet their sales plan; for example, deliveries for industrial production have not been fulfilled in the January-July period by more than 40 percent of enterprises and deliveries for investment -- with the generally highly overfulfilled plan -- by more than 25 percent of enterprises marketing these types of goods in the current year.

As for our construction industry, construction enterprises delivered in July Kcs 8.4 billion in works completed by their internal labor resources, which is 3.3 percent more than in July of 1984. However, average daily production in our construction industry declined in July by 1.2 percent. Economic production plans for construction industry were met at 101.8 percent in July. Good results in July helped advance the fulfillment of planned tasks from the beginning of the current year.

In the January-July period production was up for the first time -- by 0.2 percent as compared with the same period of 1984; over the 7 months average daily production in construction was up 0.9 percent. Moreover, the shortfall in the fulfillment of economic plans for construction production was successfully reduced, although thus for more than 45 percent of our construction enterprises failed to meet their challenging plan. In total, the volume of construction works completed by internal labor resources during the January-July period amounted to Kcs 53.5 billion.

In housing construction contracting enterprises delivered 2,120 housing units in July and 23,429 housing units since the beginning of the year, i.e., 2.0 percent more than during the January-July period of 1984.

Our agriculture is facing an urgent task at present -- harvesting our basic grain crops. As compared with the average of several years, field operations have been somewhat delayed by unusual rainfall.

As of August 13, 1985, basic grain crops had been harvested on 754,700 hectares, which is more than 34 percent of the planned area. At the same time, procurement of grain is under way (as of 11 August, 1.5 million tons were procured, i.e., the plan was 39.7 percent fulfilled) and so is the harvest of straw and green fertilizer. The inclement weather notwithstanding, the second harvest of multiannual fodder and the sowing of summer catch crops are progressing.

In livestock production the schedule for procurement in July was fulfilled at 98.3 percent in slaughter animals (of which 94.9 percent in slaughter cattle and 100.4 percent in slaughter hogs), 96.6 percent in slaughter poultry, 100.2 percent in milk, and 106.6 percent in eggs. As compared with July 1984, the procurement of slaughter animals this year was down by 800 tons, of milk up 8.4 million litres, and of eggs up by more than 22 million eggs.

As compared with the same month of 1984, transportation by public freight transport increased in July by a total of 2.1 percent; in the CSD [Czechoslovak Railroads] it was down 0.1 percent, while in the CSAD [Czechoslovak State Automobile Transportation] it was up 3.6 percent and in river transportation up 9.5 percent. As compared with the same period of 1984, transportation by public freight transport declined during the January-July period by 3.8 percent, of which by 4.0 percent in the CSD, by 3.6 percent in the CSAD, and by 5.5 percent in river transportation.

In domestic trade retail sales of main commercial systems in July amounted to Kcs 21.2 billion at current prices, i.e., 6.8 percent more than in July of 1984. The following commercial organizations considerably exceeded their economic plan from the beginning of this year through July: "Obchod ovocem a zeleninou" [Fruit and Vegetable Stores], "Uhelne sklady" [Coal Supply], and "Obuv" [Footwear]. On the other hand, the "Nabytek" [Furniture] and "Obchodni domy" [Department Stores] organizations failed to meet their economic plan for retail sales during the period under discussion.

In foreign trade exports increased during the January-July period in general as well as in individual groups of countries faster than stipulated by the state plan for the entire 1985. Over the 7 months 55.9 percent of the annual plan for exports were fulfilled (of which to socialist countries 55.6 percent and to nonsocialist countries 56.6 percent). In imports the annual planned growth rate was slightly exceeded in imports from socialist countries; total imports and imports from nonsocialist countries failed to meet the level set for the year by the state plan.

Money supply at the end of July amounted to Kcs 55.1 billion, as compared with Kcs 53.3 billion at the same date in 1984.

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FOOTNOTE

*) The dynamism of basic national economic indicators in July as well as from the beginning of the current year was affected also by the unequal number of workdays; there was one additional workday in July and one workday less in January-July period than in 1984.

Basic Indicators of National Economic Developments in July 1985

| Increase Over Comparable 1984 Period (in percent) | July | Jan-Jul | State Plan[1] |
|---|---|---|---|
| Deliveries of the Centrally Administered Industries for: | | | |
| --investment at wholesale prices | * | 9.5 | * |
| --domestic market | | | |
| at wholesale prices | * | 2.4 | * |
| at retail prices | * | 1.2 | * |
| --export to socialist countries | | | |
| at wholesale prices | * | 6.6 | * |
| at FOB prices | * | 7.4 | * |
| --export to nonsocialist countries | | | |
| at wholesale prices | * | 3.2 | * |
| at FOB prices | * | 1.9 | * |
| --other sales for industrial production and other operations at wholesale prices | * | 3.4 | * |
| volume of industrial production | 6.9 | 3.3 | 2.9 |
| average number of employees | 0.5 | 0.6 | 0.9 |
| labor productivity based on industrial production | 6.3 | 2.7 | 2.0 |
| Construction | | | |
| construction work performed with internal labor resources | 3.3 | 0.2 | 0.7 |
| average number of employees | 0.3 | 0.2 | 0.6 |
| labor productivity based on construction work | 3.1 | 0.0 | 0.1 |
| housing units delivered by contracting enterprises | 21.1 | 2.0 | 25.3 |
| Procurement | | | |
| slaughter animals (including poultry) | -0.5 | -1.1 | -1.1 |
| milk | 1.5 | 0.5 | -2.1 |
| eggs | 8.4 | 1.3 | -6.4 |
| Retail Turnover of the main trade systems | 6.8 | 4.1 | 4.1 |
| Foreign Trade[2] | | | |
| export to socialist countries | * | 4.5 | 3.4 |
| export to nonsocialist countries | * | -1.0 | -2.2 |
| import from socialist countries | * | 5.4 | 5.0 |
| import from nonsocialist countries | * | -1.9 | 9.1 |

1. Plan adjusted for actual 1984 results. Planned growth increments reflect changes from May 1955.
2. Data on actual results of the Federal plan prepared for 1985 (according to Governmental Decree No 308/84).

9004
CSO: 2400/10

GERMAN DEMOCRATIC REPUBLIC

# RELATIVE EFFECT OF AUTOMATION ON LABOR PRODUCTIVITY ASSESSED

East Berlin SOZIALISTISCHE ARBEITSWISSENSCHAFT in German Vol 29, No 1 1985 pp 22-29

[Text] The realization of the economic strategy decided at the 10th SED Congress requires further perfection of the analysis and planning of work productivity. This is the necessary condition for the scientific foundation of medium and long-range prognoses of productivity development on the level of the national economy as well as on that of industrial and economic sectors, branches, combines and firms. The entire national economy, each combine and each firm thus faces the task of recognizing those factors that will contribute to the increase in work productivity and to utilize consistently the appropriate reserve potentials. That this is one of the main tasks of our economic practices and also a principal challenge to scientific economic research was made clear at the 1983 GDR Economic Conference where G Mittag stated: "To investigate even more thoroughly the correlation of all factors effecting the increase in work productivity is a task of modern theoretical and practical importance."[1] He also demanded that we should therefore intensify, everywhere and more than before, the analytic work on factors that contribute to the increase in work productivity.[2]

Under conditions of intensively widened reproduction there are, first of all, qualitative factors that determine decisively the level and dynamics of work productivity and thereby possible economic and social progress. In analyzing and planning economic processes as well as in evaluating the productivity of combines and firms the increasing importance of qualitative factors of economic growth must be adequately expressed. The realization of this task is the condition for the quantification of qualitative amounts of influence.

A condition for the analysis and planning of work productivity according to contributing factors is the comprehension of qualitative and quantitative correlations that exist between work productivity and the factors that influence it. In order to explain these causal relationships as comprehensively and in as complex a manner as possible from the point of view of reproduction theory, factors are being defined as the processes that unite, from the qualitative point of view, all possibilities contributing to an increase in work productivity --e.g. scientific-technical progress, the level of qualification and training of the workers. The intensive analysis of the content of these relationships must precede the quantification of the influence of appropriate factors on the development of work productivity, so that the realization of the latter can

and may only be the second step. This is important inasmuch as the mathematical-statistical instrumentation to be used must always be subordinated to the analysis of content in order to minimize, and even excluded, false interpretations of quantitatively obtained results.

The complexity and internal interrelationship of the effects of appropriate factors on the increase in work productivity do not permit us to focus on the total effect of one factor. Regardless of this fact, however, it is possible to quantify the effect on the increase in work productivity of partial factors that result from the influence of one or several factors. In order to quantify the effects of essential factors it has proven useful to apply indicators that show changes within the elements of the work process that are caused by the influence of appropriate factors.

Unlike the factors, the indicators given in form of economic reference numbers reflect quantitative changes in the correlation between work force, work means and work materials in the production process that are due to the influence of appropriate factors.

The problem of indicators, that is of the quantitative expression of certain factors influencing the size of work productivity, is decisive for the completion of analysis and planning of work productivity according to factors. The many-sided interrelation of the factors determining the increase in work productivity and their coordination with productivity changes are reduced through the use of indicators to a manageable quantitative arrangement in which interpretation of results from the economic point of view must be paid special attention.

The assignment of indicators to a factor, in most cases however to many factors, makes it possible to establish causal relationships between the factors influencing an increase in work productivity and the elements of work processes, and thereby to point out changes in the progress of work productivity that can be reduced to the primary effectiveness of certain factors.

Under conditions of intensively enlarged reproduction, scientific-technical progress makes a decisive contribution to the continual rate of increase in work productivity. Analysis and quantification of factors having an essential influence on the dynamics of work productivity are the most important starting point for planning work productivity according to factors. In the following the influence of scientific-technical progress, through automation processes, on the development of work productivity will be demonstrated in quantitative terms. In order to accomplish this, it is necessary to understand the essential changes within the elements of the work process--work force, work means, and work materials--in quantitative terms by means of an indicator, and to put them in relation to productivity development.

The consideration of qualitatively different basic forms of equipment is of great importance for the determination of a potential development range of work productivity. This is so much more important because the processes of automation can be considered as a key factor of scientific-technical progress and will in the future represent the most revolutionary form of increases in work productivity.

Proceeding from the qualitative aspect of the technical level of basic equipments used, a difference can be made between a work force equipped with automated equipment and one with basically non-automated equipment with either kind determining the total level of the average kind of basic equipment. In the context of intensively enlarged reproduction, productivity increases are more and more based on the utilization of automated machines and plants whose share in the total classifiable amount of equipment is steadily growing. Whereas the amount of automation of equipment in industry amounted to 32 percent in 1970, it is now approximately 50 percent[3] and has thus shown considerable quantitative increases. The development toward a dominant role to be played by work forces equipped with automated basic equipment in comparison with those using non-automated basic equipment, in order to achieve an increase in work productivity, results in the fact that the amount of average basic equipment depends increasingly on equipment with automated machines and plants.

Assuming the extreme case that the entire national economy were automated, basically automated equipment and the average basic equipment would be identical in size. Because it must be assumed, however, that in particular economic sectors there is a technologically determined automation limit where the use of non-automated equipment is required, this theoretical identity of size cannot be reached. Given the greater development of production forces on the basis of scientific-technical progress, however, the difference between the average basic equipment and the equipment of the work force using automated machines and plants will steadily decrease. The smaller this difference, the greater is the breadth of material results achieved by automated machines and plants on the basis of scientific-technical progress leading toward the progress of work productivity.

In quantitative terms the influence of automation on the production process can be explained with the help of an automation indicator (A) that is defined as the relationship between a work force with average equipment to a corresponding work force equipped with automated equipment.

$$A = \frac{\frac{Gf}{AA}}{\frac{Gf_{aut}}{Pa_{aut}}} = \frac{\frac{Gf}{Gf_{kl}} \cdot \frac{Gf_{kl}}{Pa} \cdot \frac{Pa}{AA}}{\frac{Gf_{aut}}{Pa_{aut}}} = \frac{\frac{Pa_{aut}}{Pa} \cdot \frac{Pa}{AA}}{\frac{Gf_{aut} \cdot Gf_{kl}}{Gf_{kl} \cdot Gf}} = \frac{Ak \cdot a}{Ag \cdot b}$$

whereby

AA--workers and employees
Pa--production workers including the part of engineering personnel performing control and supervisory functions
$Pa_{aut}$--production workers and engineering personnel with control and supervisory functions
Gf--total equipment
$Gf_{kl}$--classifiable equipment
$Gf_{aut}$--automated equipment

Ak--automation work coefficient
Ag--automation level of equipment
a--share of production workers including the part of engineering personnel performing control and supervisory functions
b--share of classifiable equipment in relation to total amount of equipment

Because the equipment of production workers and engineering personnel using automated equipments is above the equipment of corresponding work forces using non-automated equipments and because either is part of the average equipment of workers and employees, the latter is always smaller than that of [plants with] automated equipment. The automation indicator can therefore only accept data lying below one. With increasing use of automated technology the ratio of the just mentioned kinds of equipment and the corresponding work force rises and the automation indicator advances toward one.

From the practical point of view the given automation indicator can be completed on the basis of statistically proven automation coefficients of work, of the automation level of the equipment as well as of two partial coefficients. Thus the automation indicator is arrived at directly by reference numbers which reflect changes, produced by automation processes, within the work force and basic equipments.

Qualitative changes in the development of average amounts of equipment are reflected as follows in the movement of the automation indicator:

--If A rises, the size of an average amount of equipment is more strongly determined by the amount of automated equipment;

--If A falls, the amount of non-automated equipment is responsible for the size of average equipment.

The choice of an appropriate mathematical-statistical process determines the actual relationship between results obtained for work productivity increases. Books on the subject contain different kinds of procedures that are based overwhelmingly on either index or regression computation methods. The relationship between the above described automation indicator and work productivity must be shown in quantitative terms through a regressive function, as illustrated by the following reasons:

1. An essential planning basis must be "traditional" development tendencies beyond the time of analysis. Only when these tendencies are sufficiently known will it be possible for the planning time to assess the influence of new quantitative and qualitative processes on the development of work productivity.

2. Regression methods are different from index computation in as much as they permit to show the relationship between work productivity and automation processes in stochastic context according to actual facts. It is therefore not necessary to determine the functional relationship between amounts of research and influence.

3. It is not a question of pointing out the exact share automation has in a potential increase in total productivity, but rather of showing what changes in the dynamics of work productivity are caused by automation. This is a more realistic presentation because, on the basis of the complex effects of factors on work productivity increases, the separation of productivity increases and the assignment of parts [of productivity increases] to particular influences appears to be highly problematic.

Because of the above mentioned reasons regression computations are suitable long-range projections on the development of work productivity.

The considerably higher productivity that is to be expected with the use of automated technology in comparison with traditional technology speaks for a progressive increase in work productivity depending on the automation indicator. This thesis is confirmed by computations made in combines of the [Economic] Ministry in an analysis of averages for the chemical industry for 1980.

Productivity increases within definite time spans depend on the development of the automation indicator within the time span that reflects a trend function. On the basis of the dynamic development of the automation indicator it is therefore possible to show the dependency of work productivity on automation within this time span, and to determine a time span of work productivity development reaching beyond the time span of analysis.

Increasing quantitative and qualitative progress in achieving automation will result in an automation limit covering the entire breadth of automation technology, and in the dynamics of the automation coefficients of work and of the automation level of equipment changes will take place that can be characterized as follows:

a) The level of automation in equipment rises further, which means that the influence of automation technology on the highest level becomes increasingly important.

b) A limit has been reached in equipping the entire work force with automated technology, and the traditional automation coefficient of work undergoes only slight changes--similar to the mechanization coefficient of work--and thereby loses its value in predicting future developments.

These development tendencies result in a falling tendency of the automation indicator which was computed on the basis of the entire breadth of automation technology. The indicator goes through a phase of reversal which appears when productivity increases are based primarily on the effectiveness of automation technology with a qualitatively higher level and which then has little value in predicting the development of work productivity.

From these presentations can be concluded that when a higher level of automation has been reached the automation coefficient of work as well as the automation level of equipment must be determined in accordance with the

higher level of automation. This results in a new basis for determining the automation indicator which then regains its value in predicting potential productivity increases. Figure 1 describes graphically the development tendency that has just been explained.

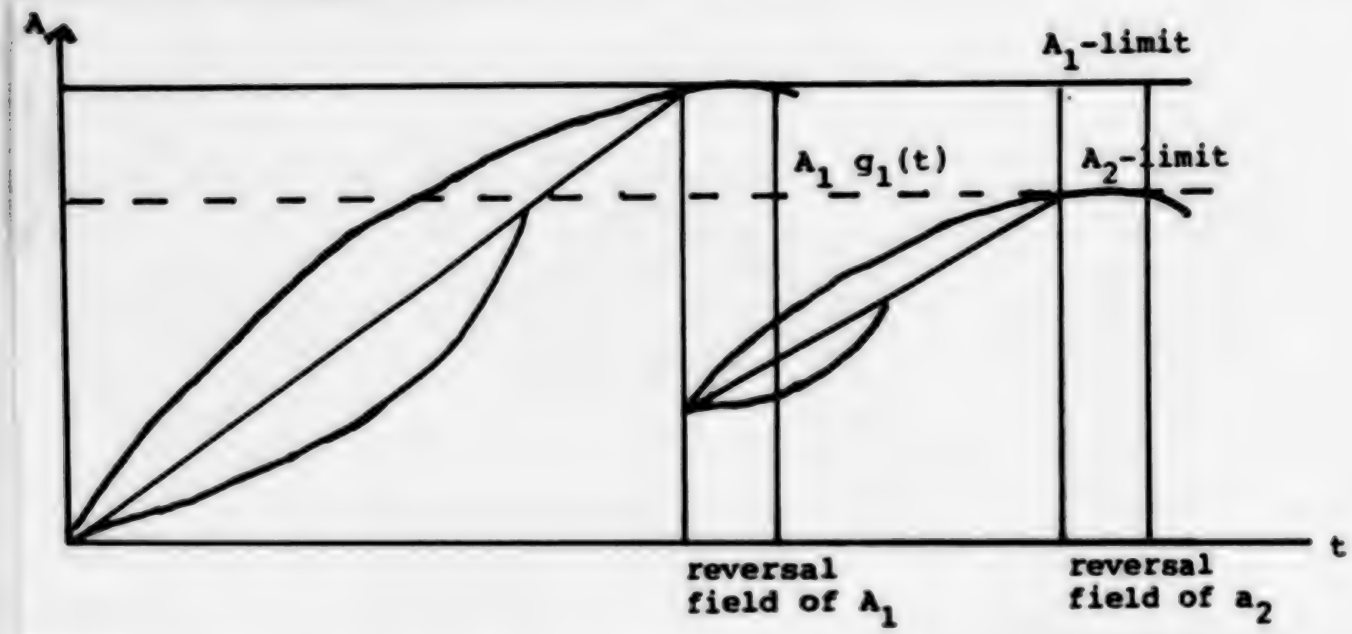


Figure 1. Development of different A-amounts in time

The progressive, linear or degressive rise of A changes to a degressive rise when it approaches the reversal field. After reaching the reversal field A shows a tendency to fall. Conclusions about the increase in work productivity can be drawn each time from the rise of $A_1$ and $A_2$ until the reversal field is reached, that is within a definite automation level.

Figure 2 illustrated the dependence of work productivity development upon the automation indicators.

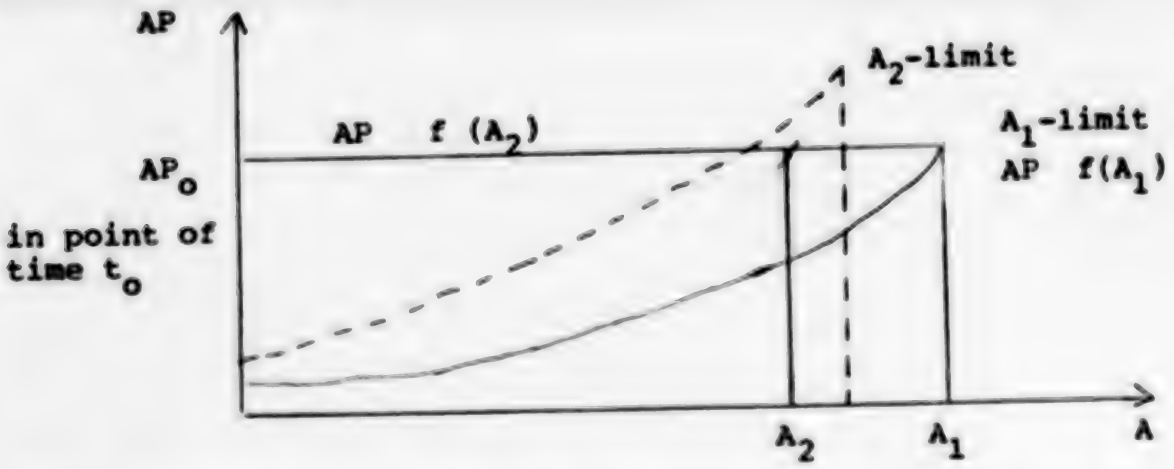


Figure 2. Correlation between work productivity and automation indicator

The lower curve in Figure 2 represents the correlation between work productivity and $A_1$--computed on the basis of the total breadth of automation--until the reversal field is reached. The resulting dynamics of the attained productivity level, which the graphic shows as $AP_o$ in point of time $t_o$, is presented on the basis of indicator $A_2$ in whose formation only qualitatively higher automation technology is involved.

If with sufficient statistical certainty a trend function of the automation indicator and a regression function of work productivity can be established, both functions form the basis for determining a medium and long-range development span of work productivity.

The chemical industry was especially suitable for practical research in the correlations just demonstrated. Chemical processes show continual development and therefore offer favorable conditions for the application of measurements, directions and regulations so that chemical plants are highly automated and a sizeable part of the production workers perform supervisory functions.

The following steps determined a medium-range development span of work productivity (five years) for nine selected combines of the Ministry of Chemical Industry:

1. Determination of the trend function of the automation indicator

   In order to compute this trend function, indicator values of three years from nine combines of the Ministry for Chemical Industry were available so that an attempt was made to combine a time sequence analysis with an average analysis.

2. Determination of the regression function of work productivity

   The basis for computing this regression function was a clear average analysis within the combines. The regression function of work productivity thus obtained provides the basic direction of the actual connection between work productivity (net product per worker and employee) and the automation indicator without consideration of accidental fluctuations that are not caused by the indicator.

3. Extrapolation of the automation indicator

   The trend of the automation indicator determined in the first step was extrapolated over five years. The results obtained are medium amounts of a tolerance field whose size is determined by the exactness of the representation of automation indicator's actual development through the computed trend function, as well as by an assumed probability for the occurrence of the computed development. Thus the result of the extrapolation of the automation indicator is not the only amount but a spread interval whose value the indicator can accept with a given probability of error.

4. Extrapolation of work productivity

For the upper and lower limit as well as for the average of the obtained tolerance field of the automation indicator the development of work productivity is extrapolated with the aid of the regression function, and the result produces in turn medium values of the tolerance field of work productivity. The joint extent of these tolerance fields represents the sought development span of work productivity whose amounts can be reached with definite probability in a given year.

The productivity of the basic year can be compared with different amounts of the development span of work productivity of a given year in order to determine corresponding annual rates of increase in work productivity. In the performed computations were selected, on the one hand, the average amount and, on the other hand, the upper limit of the obtained development range of work productivity for the particular economic sector. This made it possible to obtain data for annual increase rates of work productivity which--compared with the initial production level of the basic year--represented challenging goals for the economic sectors.

This approach makes it possible to estimate the production level in an economic sector not only on the basis of proven arithmetical means of the production level of several economic sectors, but also--and this is of special importance under the conditions of scientific-technical progress--in regard to the production level that is reached by these economic sectors on the average with a definite automation level.

From the practical research performed the following conclusions can be drawn for planning productivity dynamics within an economic sector:

The establishment of concrete and differentiated data for the development of work productivity requires that the movement of the productivity level within the development range of work productivity be determined. Guidelines for this determination can be immediately the average characteristics and the upper limit of the development range.

--In economic sectors in which the production level is below the work productivity which can be reached--based on the particular automation level--the goal will be to reach the average amounts within the development range of work productivity.

--In economic sectors where the production level is above work productivity which can be reached on the average--based on the particular level of automation--the goal is to reach the upper level of the development range of work productivity.

This approach results in objectively obtained directions for reaching a possible development of work productivity, and these directions in turn contribute to a more thorough understanding of scientifically based planning.

The approach selected can be further developed, on the one hand, by utilizing additional indicators (e.g., basic equipment quota, consumption intensity of production) and, on the other hand, by research on the existing quantitative and qualitative relations between the factors of work productivity increase which result especially from the effects of scientific-technical progress under conditions of comprehensive intensification (e.g., relations between accelerated development of scientific-technical progress and the demands made of the qualification level of the workers, the consequences resulting from production innovation). This makes it possible to create a secure basis for productivity planning according to factors.

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FOOTNOTES

1. G Mittag: Theoretical Generalization on the Progress of Combines in Regard to Work Productivity Increase in the National Economy, Especially Through Utilization of Qualitative Growth Factors. WIRTSCHAFTSWISSENSCHAFT [Scientific Economy] 1981 vol 1 p 46

2. Ibid. p 47

3. Cf G Langendorf/H Nick: Tendencies in Qualitative Changes of Work Means. WIRTSCHAFTSWISSENSCHAFT [Scientific Economy] 1983 vol 1 p 16.

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GERMAN DEMOCRATIC REPUBLIC

## SOCIALIZED LABOR PROMOTES INDUSTRIAL ECONOMIC PERFORMANCE

East Berlin WIRTSCHAFTSWISSENSCHAFT in German Vol 33 No 5, May 85 pp 660-677

[Article by Hans-Joachim Braun, Prof Dr of Economics, Certified Economist for Engineering, Section Chief at the CC SED Central Institute for Economic Policy; and by Erhard Doerschel, Dr of Economics, Certified Sociologist, Lecturer at the CC SED Institute for Socialist Political Economy, Academy of Social Sciences. Original title: "Comprehensive Intensification and Socialization of Production and Labor in GDR Industry"]

[Text] Summary

The article deals with the shift of emphasis resulting from the requirements of the new stage in the implementation of the economic strategy, for the further socialization of production and labor in GDR industry.

It is pointed out that this socialization process is a pivotal question in the continued developoment of socialist relations of production and that it is directed at the radical acceleration of development of the productive forces. Broad coverage is given to the consequences that will result from the complex implementation of innovation processes for the realization of the basic forms of socialization. Reasons are given for the fact that the scale of production is of central importance for all problems concerning the relation between socialization and advances in intensification. The authors consider the correspondence between the growth in efficiency in the industrial combines and the social efficiency requirements as cardinal point of the socialization process and from this point of view look at new requirements made on the organization of the science-technology-poroduction-sales cycle. Finally, the characteristic features of socialization processes in socialism are elaborated, i.e. to strengthen the social connection between producers, to raise to a qualitatively higher level the friendly cooperation between combines and companies, and to promote effectively the creative initiative of all working people. In a compact manner the requirements are characterized that result from the socialization of production and labor for the organization of the economic mechanism.

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As Comrade Erich Honecker noted at the celebration of the GDR's 35th anniversary, the process of the organization of the developed socialist society in the GDR is characterized by the fact, among others, that the "state owned combines emerged, consolidated (themselves)...and...(turned into) the backbone of the planned economy. Mainly by way of intensification., we succeeded in using science and technology to the best economic effect."(1) Applying the perceptions on the socialization process of production and labor, intensification in the GDR is linked to the development of the combines.

In preparation of the Eleventh SED Congress, the call went out to secure stable bases for the development of comprehensive intensification in the long term and, therefore, to take another step toward the implementation of the economic strategy. This challenge is most closely linked with ongoing advances in planned socialization. The real substance of the new approach to the implementation of the economic strategy--by new technologies and new products to achieve greater efficiency--(2) makes greater demands on cooperative and resolute collaboration in all sectors, on the development of comradely cooperation in and among the production collectives. In their capacity as economic units of the transition to comprehensive intensification, the combines embody on the one hand that standard of socialization objectively needed to cope with the demands of comprehensive intensification. On the other hand, another basic task involves the further planned advance of the socialization process, and scholarly studies are needed in this context. As emphasized at the 1983 Conference on Economics, among the pivotal tasks are the evolution of the relatively closed reproduction process in the combines and the development of new types of concentration, specialization and cooperation, required in particular to cope with the renewal process. It is also extremely important to create the proper conditions for the greater flexibility of the combines in response to the growing dynamism of scientific-technical progress and the changed market conditions.(3)

We are thus concerned with the cardinal questions of the advanced development of socialist production relations by which effective stimuli should be applied to the development of the productive force. Scientific-technological progress, above all, must be allocated more elbow room. That includes the need efficiently and comprehensively to encourage the social activism of the working people, concentrating it on the greatest possible performance growth. The realization of socialist democracy in production must be organized as efficiently as possible.

Increasing socialization implies increased reciprocal dependence and the interlinking of all elements of production in the factories, combines and the entire national economy. This development results in larger dimensions, a qualitatively higher standard and the growing sophistication of the social reproduction process.

The great importance of the socialization process is due to the fact that the basic forms of the socialization of production and labor--division of labor, specialization, cooperation, concentration and combination of production--represent classifications germane to the productive forces as well as to production relations. Consequently, socialization represents to some extent the junction of the interaction between productive forces and

production relations. The development of the productive forces is objectively the cause of the further socialization of production and labor, it steadily creates new points of departure for this process. The repercussions of the production relations on the development of productive forces proceed in particular by way of socialization. The interaction of productive forces and production relations involves profound and complex social processes. A thorough study of these represents the prerequisite for their efficient management and, therefore, the utilization of all benefits and motive forces of socialism.

Three basic features must be singled out in this connection: To be emphasized first of all is the internal dialectic of these processes. Just because the division of labor in society is objectively growing, producers need to cooperate more closely; because specialization advances, cooperation assumes greater importance, and so on. The socialization process is the process of the evolution of this internal dialectic. Deeper division of labor, for example, does not necessarily result in closer cooperation--that requires conscious organization. This implies important tasks for the perfection of management, planning and economic accounting and means that we are certainly not concerned only with relations in the sphere of the productive forces, such as the arrival at technologicval coincidence between final producers and component suppliers. Consonant with the nature of socialist production relations, satisfactory solutions also presume a coincidence of interests. The advances of socialization in socialism are always also advances in the community of interests.

In the second place we note that advances in socialization and improvements in efficiency ultimately coincide. Improved efficiency is the chief objective of all measures for deepening the division of labor and specialization, for developing cooperation, combination and concentration. The quality of the management and planning of these processes is judged not least by the extent to which the potential efficiency advance is actually realized and--by way of distribution--noticeable for all those involved; in other words the extent to which a growing community of interests is ensured.

Thirdly we must emphasize that socialization does not always proceed in a straight line. The deeper division of labor and cooperation generally may also result in opposite processes in certain fields if, by such means, the national capacity for cooperation is improved in the long term. Involved here is not the capacity for organizing cooperation relations per se but the growing efficiency of this process, in particular in connection with the faster spread of innovations.

Changed Key Issues

The transition to the comprehensive intensification of the reproduction process results in a change in the import of various elements of the socialization process. We perceive:

1. All types of the socialization of production and labor are affected by the scientific-technological revolution and ensuing constant and massive evolution of innovation cycles as well as the rising speed of the spread of

innovations. The innovation cycle science-technology-production-sales represents a qualitative development of the social division of labor. Its internal dialectic consists in the fact that the growing independence of the phases science and technology strengthens the necessity of their reciprocal connections and, specially, their interaction with production and sales. The fast spread of innovations, in turn, presumes and results in the closer social networking of the economic units. Finally, the division of labor, specialization, cooperation and concentration in scientific-technological work also advances.

2. Rapidly rising noncurrent costs are a significant feature of fundamental innovation processes. Accordingly, cost reductions to be realized by innovation processes and their spread turn into a pivotal issue. Here we must take into account "that the shorter time lapse between cost and profit effects a more satisfactory cost/profit relation in the reproduction process. The faster this occurs, the sooner is the cost of resources compensated."(4) The connection between the advance of efficiency and rising socialization has become far more immediate and compelling. The correspondence between the growth of efficiency in the combine and the social requirements on efficiency represents a cardinal problem in this context. Fundamental international trends, such as we are witnessing in the rising level of value and price for sources of energy and raw materials, underline the necessity for raising efficiency. It is imperative, for instance, to achieve the deeper interlinking of economic relations at relatively and absolutely reduced transportation costs.

3. In the course of socialization, we must increasingly focus on the task of directing the working people's comradely cooperation and mutual aid to the speed-up of scientific-technological progress and its application in production. A key issue here is the greater mobility needed in the deployment of the social labor capacity, coupled with the guarantee of social security for all working people.

4. On the basis of the combines now established, the process of concentration must be interpreted mainly as the concentration of available poptentials on the accomplishment of important scientific-technological and productive tasks. This conforms to the fundamental need in the process of comprehensive intensification to much more emphatically involve scientific-technological work in intensification.

5. The forms of and approaches to continuing socialization largely depend on the specific needs of the various industries, sectors and combines. In this case, the dialectic mainly means that the general objective of comprehensive intensification--the improvement of efficiency consonant with the growing demand--requires the full utilization of all available and specific efficiency resources.

Socialization and the Production Scale

The production scale is of central import for all issues affecting the relation between advances in socialization and intensification. The wider the production scale, the less the recurring and, above all, the nonrecurring (or

advanced) cost per produced unit of use value. Nonrecurring costs usually include the cost of investments as well as of research and development. With respect to total nonrecurring costs, the portion of the costs of science and technology tend to rise as the result of the development of the scientific-technological revolution. This represents a fundamental economic relation which may be modified but not abolished.

There is worldwide appreciation of the fact that, as regards the metal processing industry, demand is increasingly shifting to user specific solutions. This is due to the fact that the scientific-technological revolution results in changes in production equipment, technologies and organization. Consequently "customized" solutions accompanied by greater efficiency are increasingly feasible. In other words, production has created the appropriate demand.
Because it is based on the development of productive forces, this process is also reflected in the literature on management. We hear, for example, about the replacement of the "economics of scale" by the "economics of diversity," claimed to arise from the spread of flexible automation solutions, for example. "To put it simply--control by computer, programmed production processes and electronic storage permit the application of the latest processing techniques to small output volumes."(5)

Though the facts may be correct, the subsequent conclusions are sometimes wrong. The new manifestations do not imply the replacement of the production scale as the total volume of production, related to nonrecurring costs. The novelty consists in the fact that the volume produced at specific nonrecurring costs may be split into many different products, thereby modifying the relation between production scale and nonrecurring costs. However, a rising total volume of output must be achieved at the same time, because flexible automation solutions involve large nonrecurring costs. On this basis it is imperative to provide for multishift plant utilization even in industries where there would otherwise be no compelling technological need to do so. Moreover, process flexible automation requires a great complexity of the solutions selected and, therefore, the necessary concentration of the parties involved, as well as a high scientific-technological standard of all elements of the automated systems, because the economic effect is determined by the weakest link. We thus get an immediate connection with the standard of production socialization achieved.

Also to be noted in this context is the fact that nonrecurring costs represent a variable dimension. If we limit the appraisal of production scales to the output volume alone, nonrecurring costs may be considered virtually constant. However, this presumption contrad'cts reality--international comparisons demonstrate significant differences for the same or similar products. The modernization of existing production plant has thus become the chief means for minimizing nonrecurring costs.

Important lessons in this field have been learned in the GDR. Within the framework of the youth project :intensification of the production of highly processed synthetic fiber materials, a plant in the Premnitz Synthetic Fiber Works, for example, was so reconstructed that it now produces twice as many fibers. Consequently, nonrecurring costs were lowered in relation to the

output volume. At the same time the output volume is now more varied--the same plant produces polyamide string as well as polyester fibers.(6)

The production scale is actually made up of two variables, both reflecting the standard of socialization. The production volume expresses the development of domestic and foreign markets, the availability of production capacities and the potential for their increase. Nonrecurring costs reflect the economics of the investment processes as well as of research and development. The economics of research and development, especially, largely depends on the standard of socialization achieved, because this includes the circulation of scientific-technological innovations and the ability to adopt and utilize existing research and development results.

The development of indigenous and application oriented basic research in the combines belongs with this just as much as the application of the research and development results of the capital goods industry for the development of their consumer goods production (in the long run this holds true vice versa also), the exchange of software or the subsequent utilization of the results of innovator activities. This process transcends the national framework. In socialist economic integration it is imperative "to strengthen cooperation in the field of standardization and unification as well as expand the reciprocal exchange of data on scientific-technological achievements."(7) Attention is therefore focused on the expansion of the production volume--as the result of standardization and unification--as well as on the minimization of nonrecurring costs by the exchange of scientific-technological data.

Due to the lack of property barriers, production relations in the socialist countries offer basically satisfactory opportunities for such a flow of data. However, we have learned from experience that it is necessary to actively stimulate this process. The further perfection of economic accounting in the sphere of research and development should help in this respect, among other factors by more skillful cost control. Only those costs may be acknowledged socially necessary, which cannot be avoided or reduced by subsequent utilization. At the same time we need to take into account that, as the result of the worldwide "assortment explosion," specially in the metal processing industry, the incidence of new products entering manufacture will continue to grow faster than that of the products abandoned as a consequence of international specialization. The needed speed-up of assortment renewal in industry will even further emphasize this process. The minimalization of nonrecurring costs, therefore, offers a welcome opportunity precisely for GDR industry to improve its flexibility and efficiency.

The relation between advanced costs and the production volume also improves if new fields of application are found for past nonrecurring expenditures. The GDR has learned many valuable lessons in this respect. For example, the MKF 6M multispectral camera manufactured by the Carl Zeiss Jena Combine and initially designed for the exploration of earth from space, has been adapted for the purposes of aerial reconnaissance, helping to increase the run.(8) By 1983, the multicar 25, initially developed as a minitruck, recorded 16 different superstructures (the chassis remaining the same). In 1983, "only 25 percent...of multicars were still produced as trucks in the standard version."(9)

This shows us the way to the settlement of problems confronting the GDR metal working industry in particular. A flexible response to increasingly more sophisticated customer requirements and the simultaneous guarantee of growing efficiency require the modification of earlier basic scientific-technological solutions consonant with the actual demand. This certainly applies to the combination of existing technical solutions also, something that is consciously aimed for by the ORSTA-Hydraulics Combine. "Top products with international top standards are produced by flexible equipment." As the general director of that combine explained, "Requests we used to handle as 'specials' at great expense will be normal occurrences in future--our customers will be able to satisfy their design wishes from our box of tricks."(10) The approach described represents one aspect of the efforts so to develop component output as to make for top achievements by the partner.

Growing Differentiation

At present the socialization of production and labor involves extremely varied and differentiated processes in the scientific-technological forefield of production, the combination of science with production. Generally speaking, the development of the productive forces and the further perfection of socialist production relations proceeds in many different ways. That also applies to the definition of the socialist nature of labor including the socialist competition and all kinds of mass initiatives.

These multilayered and differentiated processes must be realized in all kinds of production relations and build upon a different degree of socialization in the various combines. This may show up in the size of the respective combines, the numbers, sizes and regional distribution of the various combine factories, the varying scientific intensity including the sharply different sizes and structures of the scientific-technological potential, the production structure, markets and market conditions as well as the intensity of foreign trade relations and their trend.(11)

The output of consumer goods in combines of the capital goods industry well illustrates the crucial importance of taking different conditions into account. This activity represents a concrete manifestation of the closer and more direct interlocking of different sectors of social production, characteristic for the socialization process. For the continued pursuit of the main task, it is necessary as resolutely as possible to develop this trend of the socialization of production.

Modern capital goods and modern technical consumer goods tend to rely on the same technological operational principles. That is one of the factors of importance for this development. Microelectronics, for example, represent one of the bases of both robot equipment and modern entertainment electronics. With regard to the production of consumer goods, taking heed of the various conditions means to, among others, fully utilize for the manufacture of consumer goods in great demand the available specific potential of research, development and production.

Of course that is not all we must do. Many combines are developing the manufacture of new consumer goods, unrelated to their traditional product line. They set up separate research and development capacities with just that objective and carry out purposeful investments. The fast achievement of profitable and demand appropriate production scales is particularly important in that connection. It genuinely complements and at the same time eases the burden on combines of the consumer goods industry.

The process may be called successful when the combines of the capital goods industry consistently keep in mind that consumer goods production (including sales) has its own specific features, some of which differ sharply from those of the capital goods production. In the course of the manufacture of consumer goods, "such categories as need, demand and cash income"(12) require particular attention.

Socialization and Comprehensive Innovation Processes

The advances in efficiency needed now and in future can be lastingly guaranteed only by the mastery of comprehensive innovation processes at the level of the combines and their basic orientation to social requirements.

As stressed at the Conference on Economics, "the decisive factor is this: Only a constantly high standard of science and technology guarantees the dynamic process of intensively expanded reproduction...It is the responsibility of the economist not to admit any criterion except costs and profits for the appraisal of the utilization of science and technology."(13)

The crucial aspect of this new quality of socialization in the establishment of combines consisted in the fact that "the cycle science-technology-production...(was) shaped according to plan as an indivisible element of the reproduction process and, at the same time, the decisive source of its constant expansion on a higher scale and its intensification."(14) As regards the future challenges to the performance development of our national economy it will be a decisive precondition so to organize the cycle science-technology-production-marketing as to provide decisive impulses to new approaches to improvements in efficiency and help overcomeobstacles to efficiency. It will therefore be necessary to use such key technologies as microelectronics, brown coal chemistry, further processing metallurgy and biotechnics in the entire national economy. All combines must assist this process by effective contributions.

The seminar and conference held by the SED Central Committee with the general directors of combines and CC party organizers in March 1984 showed how much the social challenges in this field have increased. As regards the modernization of complete production sections by means of internal rationalization aid construction, the demand went out, for example, that the "efficient combination of modernization, general overhauls, the use of microelectronics and robot equipment"(15) should make it possible quickly and with the greatest productivity to use the latest scientific discoveries.

The construction of rationalization aids in the combines has an increasing role in the transfer of the result of science and technology, in particular

with regard to the solution of technicological problems. It will therefore be necessary to provide the scientific-technological lead for the construction of rationalization aids. Particularly important in this context is the combination of product and equipment development. In these circumstances, rationalization aid construction in the combines is defined very widely and comprehensively. It includes the construction of highly productive and combine specific plant, the development of process specific electronics and the construction of special machines as well as the manufacture of components for the modernization of existing plant. It is the objective to thereby comprehensively reconstruct and modernize production sectors and processing stages.(16) This process will be all the more successful, the more dynamic the structural changes in the construction of machines and plant altogether. "Fast technological advances in many sectors most definitely presume a better quality of the products of machine construction and electrical engineering/electtronics, require the appropriate organization of their assortments."(17)

It is important to note that it is not a matter of primarily concentrating on demands on others but rather of shaping and motivating the potential in the respective own sphere of responsibility in conformity with the greater requirements. Basically we are concerned with the ongoing definition of the closed nature of the reproduction process in the combines. This trend, practiced in the GDR for quite some time, corrects simplistic perceptions of the socialization process. It certainly does not imply the pursuit of "self-sufficient" combines or "islands." On the contrary--the conditions are created for a higher standard of their interaction, a higher level of cooperative capacity, characterized by the fact that the combines are turning into centers of comprehensive innovation processes, qualitatively novel economic units.

We need to assume that a qualitatively higher standard of the productive forces (in particular of the material-technical basis of socialism) is created in the process of comprehensive intensification. Intensification "facilitates that rise in performance of the national economy, which...is indispensible...for the constant modernization and the expansion of the material-technical basis of socialism in the GDR."(18) That has important consequences for the social division of labor and cooperation, because "unless it does not represent a merely quantitative expansion of the known productive force, each new productive force...results in a new improvement of the division of labor."(19)

Involved here are profound and rapid changes in the division of labor within industries, sectors and combines as well as between them. In these circumstances, the increase in the cooperative capacity of all members of the national economy is a task for the present and the future. This is particularly evident in connection further processing. Guenter Mittag expounded that "the quality of production is the concentrated expression of the degree of processing achieved in each combine and factory. Quality work more than ever determines economic efficiency. Quality means that the product embodies the latest scientific-technological knowledge and has been manufactured with the most modern equipment in the most productive manner."(20) Quality is measured in social criteria, the benefit for the user

or customer. In this meaning it will be necessary to combine the improvement of quality standards (emphasized especially in connection with the drafting of further processing conceptions) with the thorough perfection of economic interlinkage. Each combine is called upon to make the greatest possible efforts in this field. The results will benefit it in the shape of better components and production equipment.

We are thus concerned so to organize interlinking relations as will enhance the scientific-technological and economic progress in society. The performances accomplished in further processing will increasingly meet with social appreciation only if the producers prepare the users by purposeful and timely application. Also involved are great challenges on the realization of democratic centralized, evidenced by the fact, among others, that all products will be subject to government quality controls.

In our time, a task-related approach often requires the concentrated deployment of the scientific-technological potential, independent of its classification inside the combine, as well as the deepening of cooperative relations with research forces outside the combine. At the Conference on Economics, several people (including the general director of the "Walter Ulbricht" Leuna Works VEB) emphasized that the even greater concentration of the research potential on decisive key points of intensification has become an urgent need.(21) The necessary concentration in the deployment of the potentials must be interpreted as a dialectic process of the combination of internal and external forces. With regard to the formation of the scientific-technological potentials, the centrally managed industry of the GDR has achieved a high standard. Cooperation with the outside will therefore have to assume greater significance. Two aspects are particularly important:

1. The development of such forms and methods of the combination of science and production, which are best suited for raising the economic efficacy of science and technology. This includes cooperation between the sections for basic research at the Academy of Sciences and the combines. Basic research in the combines should at least be developed to the extent that the combines keep an open mind for the acquisition of the results achieved in other sectors and thereby secure their cooperative capacity for fundamental innovation processes;

2. The preparation of and decisionmaking about innovation processes transcending a sector of the national economy. The state assignments have provided important bases. At the Ninth SED CC Plenum, one of the decisive directions for the further development of efforts was described as follows: "From the very beginningm, the scientific-technological tasks and the preparation of the appropriate investment measures must be planned, managed and accounted for as a uniform process."(22) The scientific-technological and intellectual potential formed in the combines represents an important basis for this endeavor.

The dimensions achieved thereby are demonstrated by the Chemical Plant Construction Combine. Eighty-five percent of this combine's scientific-technological potential, including the test center and central robot construction, are concentrated at the parent factory in Grimma/Leipzig. About

a third of the 32,000 combine personnel have graduated from universities or technical colleges.(32) Creative cooperation between the members of the working class and the scientific-technological intelligentsia is crucial especially for the success of the exports of complete plant, carried on by this combine to a significant extent.

It is evident that the evolution of the cycle science-technology-production-sales is more than a technical-economic process and involves more than the creation of the respective potentials. Incident also--and coincident with the greater definition of the leading role of the working class--are many kinds of cooperation and adjustment between the working class and the socialist intelligentsia. Ultimately it is a matter of the further consolidation of the alliance between the working class and the socialist intelligentsia for the organization of the developed socialist society. Thus we see confirmed again that "combine establishment in our republic strengthens the power of the working class and, in addition, more closely links the working people in combines and factories, in their capacity as socialist owners, with national economic and general social interests."(24)

Corresponding to the rising national responsibilities of the combines, a new step became necessary toward the gearing of the system of management, planning and economic stimulation to the comprehensive intensification of the reproduction process. One of the objectives of the decisions adopted is that of so improving the overall management of economic processes as to enable it to meet future performance needs. This also requires new and lasting impulses for the democratic mass initiative within the scope of democratic centralism. The process of socialization is bound ultimately to result in the consolidation of the social cohesion of the producers and the combination of their creative powers for the accomplishment of economic and sociopolitical tasks. Its standard also stands revealed in the the success of the development of comradely cooperation and mutual aid among the working people, the efficacy of the democratic mass initiative for the speed-up of scientific-technological progress. In fact, the deepening of cooperation calls above all for the improvement of cooperation among our people.(25)

The New Features of Mass Initiative

Socialist competition, socialist community work for the speed-up of scientific-technological progress and cooperation in the collective innovator movement have proven to be important fields for the creative efforts of the working people.

In connection with the development of democratic activities, the following key points must be accorded special consideration.

1. It is imperative to secure the proper operation of the planning process, in particular with regard to the stability of the plan targets and the active involvement of the working people in the best possible quality plan preparation, accounting and supervision. That also affects the organization of the plan discussion.

2. The workers' willingness to perform depends very largely on management, specially the relationship between the collective and its immediate superior. It is the specific responsibility of the manager as efficiently as possible to carry out his social tasks and, at the same time, take account of the interests of the members of his collective. This specific feature defines the position of the manager in the system of the social division of labor; it establishes his performance-decisive role in the production process.

3. We need to reflect anew how to mobilize the many, complex and varied factors involved in the encouragement of democratic activism. That applies to the shaping of organizational rules which need to be simple and transparent as well as to the careful appraisal of critiques, proposals and suggestions and, in combination with these, the thorough and truthful information of the workers about actual problems and their backgrounds. Comprehensive and truthful information often furnishes the starting point for the workers' total commitment to the accomplishment of complex tasks.

The Improvement of Management, Planning and Economic Accounting

The decisions on the perfection of management, planning and economic accounting are based on the perception that comprehensiveintensification requires a higher standard of management at all levels. The creation and organization of combines is a basic tendency of the socialist socialization process in the conditions of comprehensive intensification. The combines in industry, construction and other economic sectors provide the economic-organizational foundation for the implementation of the economic strategy of the 1980's. "By the establishment and consolidation of the combines in centrally and district managed industry, a new stage in the provement of management in industry and construction has been achieved."(26)

The decisions on the perfection of management, planning and economic accounting are mainly concerned with strengthening democratic centralism. The improvement of central management and planning is being sought, combined with the growing self-responsibility, democratic cooperation and creative initiative of the collectives of workers in factories and combines. Crucial for the efficacy of the measures decided is their comprehensiveness--management, planning and economic accounting represent a unit on the basis of democratic centralism. Careful coordination is the first requirement for the necessary effect of the individual provisions. The perfection of management, planning and economic accounting is indispensable for the "combines to (become) that type of economic units which are needed absolutely by our society for coping with the transition to comprehensive intensification and to resolutely orient the entire reproduction process of the combine and its factories to the satisfaction of the demand."(27)

For the socialization of production and labor to yield the greatest possible advance in efficiency, the socialization process must be truly comprehensive. That is why management, planning and economic accounting must be geared to the qualitatively new economic units. Greater challenges on the central management of the economic processes arise from the greater economic responsibilities of the combines. That fact is reflected in particular in three substantive objectives which are being pursued by the measures decided.

1. It is imperative more compellingly to translate national needs and necessities into concrete tasks for the combines. That applies to the orientation of the combines to the greatest possible efficiency as well as the transformation of the production structure in accordance with changing demands and the development of the national proportions. The direct social nature of labor in socialism will be more sharply defined thereby.

2. Planning and balancing will be so perfected that the complex national interlinkages may be better mastered. This requires greater mobility in the organization of business contracts just as much as in planning and balancing. The influence of central state planning on the reproduction process is bound to grow to the extent that we succeed by improved balancing to achieve agreement between efficiency and proportionality requirements, let balances become effective as operational management tools. In this context we must also remember that advances in socialization make for deeper national interlinking. On the other hand, efficiency is improved only if interlinkage raises rather than reduces economic flexibility. Flexibility is an element of efficiency particularly concerned with the economy of time. A raise in flexibility now represents one of the most important reserves in the struggle for improving national efficiency. The central measures of planning and balancing will have greater effect, the more the course of the reproduction process in the combines accelerates, because the material opportunities of society are thereby increased directly or indirectly. The improvement of production continuity offers significant opportunities for the speed-up of the reproduction process. This continuity represents a direct requirement of production at a high standard of socialization. We see confirmed the claim that the deepening of socialization results in the acceleration of all processes. At its core is the speed-up of the material reproduction process. As Karl Marx noted, we are dealing her with the "law of the replacement of speed by mass and of mass by speed."(28)

3. The measures are designed to achieve greater coincidence between social needs and the interests of combines and factories. This includes the necessity to so further develop economic accounting that anything profitable for the national economy is also profitable for the factories and combines. Not that the perfect and all encompassing agreement of interests is called for, merely "the combination and interaction of different interests on the foundation of objective common interests,"(29) the uniform basic orientation of the national economy and combines in the spirit of the economic strategy for the 1980's, the conscious utilization of contradictions as motive forces of social progress.(30) The development of economic accounting and performance appraisal assumes decisive importance for this process, and so does the consolidation of the unity of material and financial planning.

The imposition of obligatory state plan targets down to the level of combines and combine factories is an indispensable prerequisite for consciously and with a view to the future mediating the social relations of the producers. It is concerned with the standardized management of the entire reproduction process in the combine, not only of various aspects and sections. The need to cope with the entire reproduction process from the standpoint of the best possible results of intensively expanded reproduction in its internal

interrelation, orients to the best possible final profit at the least possible cost. Standardized management must primarily have the effect that the relatively closed reproduction process in the combine evolves further. Only thus is the combine able to accomplish its tasks.

As regards the advance of efficiency in the combines, the improvement of state central planning is demonstrated by the fact that structural changes are speeded up and combined with the growth of efficiency (or efficiency losses minimized) on the one hand, while interruptions of the internal reproduction process arising from changed external conditions are countered and, in particular, observance of the objectively needed national proportions is ensured.

On the one hand central state planning is indispensable for producing the social cohesion of the producers at the most effective terms, its effect on the other is based on the standard of the socialization of production and labor achieved. The more advanced the relatively closed reproduction process in the combines, the greater the efficacy of central state planning.

Socialization and Categories of Value

Advances in the process of socialization have important consequences for the categories of value and economic accounting as a whole. They need to be considered with regard to further developments.

The orientation to a large net output, for example, promotes rational and efficient interaction inside and outside the combines. At the time of the performance appraisal according to net output (in contrast to gross indices), combines and enterprises derive no advantages from inefficient interlinkages. The index "profit" orients to a large surplus product. The distribution of the profit by way of taxes paid to the state and use within the economic unit reflects the contradictory unity of social and collective interests. The settlement of this contradiction by increasing profits by way of lower prime costs and the demand appropriate increase in the output volume is an exceptionally important concrete manifestation of the transformation of social contradictions in motive forces for development.

As far as econor unting is concerned, the most important consequence of advancing soci n consists in the fact that it demonstrates the objective role of tt arious producer collectives within the framework of society and, therefore, stimulates productivity and efficiency. Costs and profits show up with increasing precision where they actually occur. That encourages the correct appreciation of interests and assists the evolution of efficient or the dissolution of inefficient or obsolete cooperation relations. It speeds up the evolution of the relatively closed reproduction process and its standardized management in the combine. Industrial prices have a particularly important role in this context, because they facilitate the reflection of the actual economic costs at each stage of production. The more real the reflection of costs, the more precisely is the standardized criterion defined--that is the socially necessary or, in other words, average costs. "The constant referral of the labor input to its socially necessary volume is one of the most important conditions for economic efficiency and rationality;

it represents an indispensable condition for labor productivity to inevitably rise in the conditions of commodity production."(31)

By having prices fixed on the basis of average costs, producers whose costs are greater will be provided with an economic interest to adjust their costs to the social norm. That has the effect of lowering average costs. It is furthemore important for socialization that the efficacy of the equivalence principle in the circulation process encourages the evolution of efficient cooperation relations. Applicable here is Marx's suggestion that, after the elimination of the capitalist method of production, valuation must serve the rational distribution of social labor.(32)

The contribution to social funds as an element of costs reflects the high standard achieved in the socialization of the reproduction of the labor capacity. We are here concerned with a total societal issue which needs to be handled as efficiently as possible. In this meaning, earning the contribution to social funds orients to the most effective deployment of the labor capacity.

Socialization and the Labor Capacity

One of the most important tasks for the most efficient deployment of the social labor capacity is the improvement of its mobility, in other words increasing the workers' ability even in changing conditions to hold their own as elements of the total social worker.

The unity of economic and social policy is also decisive for increased mobility. After all, it is imperative "as smoothly as possible to prepare the workers for new working conditions and recruit them for jobs where they achieve the same or a higher economic profit and are able to maintain or improvetheir income levels."(33) Increasing mobility includes the encouragement of particular qualities such as the readiness and capacity to learn, initiative, creativity, a certain readiness to take risks and also a considerable rise in the personal capacity for cooperation. Greater mobility needs to be acquired by each individual worker as well as the work collectives as a whole, bvecause--in the final analysis--we are concerned with the mobility of the total social worker. The principle applies that an increase in mobility and collectivity represent a unit.

The organization of the relatively closed reproduction process in the combine also includes the expanded reproduction of the available labor capacity. The combines and, specially, the combine enterprises are mainly responsible for this achievement (in planned cooperation with the local state organs and with the use of the educational institutions). That applies particularly to the training and social measures needed for production conversions, the introduction of new items and the introduction or expansion of shift work. "All-round mobility of the worker as the 'general law of production' is...not only to be interpreted as the recruitment of workers for new tasks and shift to new jobs. It also means, so to speak, to bring new tasks to existing collectives and their individual members."(34)

## Socialization and the Cycle Science-Technology-Production-Sales

The evolution of the cycle science-technology-production-sales is the most important form of socialization arising from the scientific-technological revolution.

The cycle represents a chain of cooperation between social activities, the members of which are separated from one another by the division of labor but linked by the general objective. We must keep in mind that we are here dealing with a contradictory unity. The concern, therefore, is not for an "adjustment" in the meaning that the various links in the chain lose their specific features. That would not mean the transformation of the contradiction in a driving force (no productive solution). Instead it would amount to a flattening of the contradiction, narrowing the development of the motive force. We are thus left with two conclusions: On the one hand, it is necessary very exactly to define the specific tasks at each stage. Technical realization presumes the complete scientific conquest of the problem; transfer to production calls for mature technical solutions, and so on. On the other hand, the greatest attention needs to be devoted to the junctions between the individual stages and their combined effects. Tasks and responsibilities must be carefully defined between the stages, because the speed and efficiency of the cycle are always determined by the stage with the lowest performance standard. This connection is very clearly expressed in such a tried and tested form of initiative for scientific-technological work as the researcher guarantee.

The more obvious manifestation of the specific features of the various stages in the cycle may not be mistaken for unduly deep division of labor. We must keep in mind here that each stage of the cycle includes elements of other stages, and that their demarcations are therefore relative. The production process continues in the circulation stage, the carefully prepared technology is perfected in the production stage, the science-engineering transition is not rigid. Research and development need to take future market needs into account, in other words some elements of the sales phase are anticipated. Cooperation requires the setting of common tasks and responsibilities. In the combines, the cycle is successfully managed whenever management consciously heeds the dialectic of the division and labor and cooperation between the stages of the cycle. The more intensive the cooperation between the stages, the more rapid and efficient the total course of the cycle.

Furthermore, we must always remember that the cycle science-technology-production-sales primarily represents a logical sequence (causal chain) and only secondarily a time sequence. It is impossible to overrate the importance of this fact for the organization of a rapid course of the cycle. Parallelism offers great reserves. On the other hand, it increases the risk. This must be counteracted by the development of parallelism not only as a side-by-side in time but as factual interaction, something that again involves closer cooperation. In fact, we must consider the greater opportunities for this type of parallelism to prevail as one of the most significant potential reserves of combine establishment for the acceleration of the cycle. Cutting the cycle by parallelism as factual interaction is an extremely complicated management task which, initially, can only be carried out within an economic

unit to any greater extent. It will be necessary to collect enough sure experiences in day-to-day operations.

An important contribution is made by the close combination of plan and economic accounting in the field of science and technology. Important in this context are the regulations on the purchase and sale of scientific-technological services within and between the combines. They have the effect of deepening the division of labor and specialization in this field. The compelling need for efficient cooperation is reinforced. Above all, the concentration of the scientific-technological potentials is being encouraged and its mobility increased thereby. As a consequente there is greater interest in the multivalent utilization of research results. This has a direct effect on two important aspects of the socialization of scientific-technological work--its orientation to social needs and its comprehensive social availability. At the same time we must remember that economic accounting does not automatically operate in this direction but always presumes a high standard of demand by the customer. Independent of the purchase and sale of scientific-technological services, it is therefore necessary to strengthen the response to ambitious social demands by the documents decisive for this (tasking workbook and the plan science and technology).

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GERMAN DEMOCRATIC REPUBLIC

## BUSINESS COMPUTER AIDS FORESTRY PLANNING FOR NEXT 5-YEAR PLAN

East Berlin SOZIALISTISCHE FORSTWIRTSCHAFT in German Vol 35 No 7 (signed to press 10 May 85) 1985 pp 198-199

[Article by Dr habil W. Binder, Dipl-Ing Adelheid Reyentanz, Potsdam, Institute for Forestry Research Eberswalde, Organization and Computer Center Potsdam: "Normative Planning of Timber Felling with the Aid of the Business Computer Project NORPLA-85-BC"]

[Text] All state forestry enterprises develop plans for timber felling. This is an objective necessity in order to coordinate utilization in certain areas, prescribed by forestry institutions in the interest of natural forest reproduction, with the preset delivery plan. Plans for timber felling differ in the individual state forestry enterprises. Some enterprises develop them in conjunction with technological preparation of production, others essentially limit themselves to recording the amounts of types accruing on the planned areas, often in conjunction with a few additional technical data such as permissible additional fellings, possible technologies, etc.

In planning on the ranger district level, establishing the required technological costs often plays a minor part. Planning is based on figures derived from experience, or on actual figures of the previous year. Yet comparisons between state forestry enterprises often point up differences in technological costs and working hours which cannot always be justified on objective grounds. It is a matter of concern to attain the level of progressive enterprises in as many state forestry enterprises as possible.

For this reason, a trial presetting of norms for the planning of timber felling has been developed for state forestry enterprises for 1985. These figures are to be given to state forestry enterprises and forestry departments in the form of standard values in planning for 1986 and subsequent years. These standard values constitute guideline values to be followed by state forestry enterprises in their planning. It is of importance to the state forestry enterprises to transfer these standard values preset for the entire enterprise to the subordinate planning levels, i.e., chief rangers' and rangers' districts down to the actual felling site. This will teach local operators about cost planning in conjunction with product mix to be made available, and technologies to be applied. Normative planning of timber felling thus serves the purpose of

making the local operator aware of normative measures in planning, but without binding him to use it in every specific individual case. Normative values will only be balanced as average values, more or less, in the sum total of several felling sites. Therefore, one should try to approximate as well as possible to the standard values, planning for several felling sites, i.e., at least a ranger's district, or better yet, a chief ranger's district.

The development of computer technology has enabled us to use business computers in state forestry enterprises.

NORPLA-84-BC is a project which makes it possible to support the necessary work for normative planning of timber felling in such a way that high informative power is achieved, with a relatively small expenditure for engineers.

The starting point is the timber felling plan for partial areas of ranger districts, in which the product amount is established per felling area. In addition to the product amount per partial area, tree types, type of terrain, nature of stands, type of stacked timber (long timber or crown), the average unit volume and planned timber felling technology must be established. If particular difficulties occur on the partial area which must be approved, special felling privileges may be granted.

These data are recorded by the state forestry enterprises and are fed to the business computer. There, they are available as a data base and can be corrected, deleted or amended with further data.

Table 1:

State farm enterprise 5161 — NORMATIVE UTILIZATION PLAN - CHIEF RANGER DISTRICT
Chief ranger district 02 — NORPLA-84 SURVEY OF TYPES date: 8/8/84, p 12

| Ranger district | TARGET AMOUNTS in cubic meters 01 | 02 | 03 | 04 | 05 | Total, chief ranger distr. |
|---|---|---|---|---|---|---|
| ABST. ZUSCH. % | 0 | 0 | 0 | 0 | 0 | 0 |
| 01 Veneer oak | 0 | 0 | 0 | 0 | 0 | 0 |
| 02 Veneer beech | 0 | 0 | 0 | 0 | 0 | 0 |
| 03 Veneer....sLB.... | 0 | 0 | 0 | 0 | 0 | 0 |
| 04 Veneer fir/larch | 0 | 0 | 0 | 0 | 0 | 0 |
| 06 Timber, birch | 55 | 0 | 0 | 15 | 0 | 70 |
| 07 Timber, beech | 50 | 30 | 50 | 100 | 85 | 315 |
| 08 Timber, deciduous | 30 | 0 | 0 | 30 | 40 | 100 |
| 09 Timber, fir/larch | 1515 | 10 | 0 | 800 | 430 | 2755 |
| 41 Firewood | 135 | 50 | 0 | 60 | 25 | 270 |
| 99 Errors | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 2235 | 1230 | 500 | 1845 | 1015 | 6825 |
| Amount (cubic m) | 2235 | 1230 | 500 | 1845 | 1015 | 6825 |
| Work time (hrs) | 1709 | 1916 | 706 | 2481 | 888 | 7700 |
| TECH.K (1,000 M) | 24.4 | 27.2 | 10.0 | 35.3 | 12.6 | 109.3 |
| DK/VK (1) | 878 | 756 | 331 | 711 | 473 | 3149 |

Table 2

State forestry enterprise 5161 — NORMATIVE UTILIZATION PLAN - Chief Ranger District
NORPLA-84 Date: 8/8/84, p 6

TECHNICAL SURVEY

Key:

1. Technology
2. Amount
3. Work time
4. Technical costs
5. Cubic meters
6. Hours
7. Hours/cubic m
8. Per 1,000 Marks
9. Marks/cubic m
10. Survey of performance types
11. Type of production activity
12. Amount
13. Work time
14. Technical costs
15. Total, chief ranger district
16. Number of defective individual areas

Based on these data and stored normative values (produced centrally without burdening the enterprise), capacity computations are carried out for every partial area as to work time, technical costs and energy consumption. Tree species, average unit volume, type of terrain, type of timber stands, and technology are decisive for establishing the individual normative components. On the basis of normatives computed for every partial area, the norms for work time, technological costs and energy consumption are calculated for the levels of ranger districts, chief ranger districts and state forestry enterprises and compiled in tables according to technology, performance types, and species (Tables 1 and 2 are those for a chief ranger's district). State forestry enterprises are often faced with the situation where the delivery plan must be changed. This results in necessary changes in the timber felling plans. If the timber felling plans for partial areas are stored in the business computer with NORPLA-84-BC, these changes can be made very efficiently, since only the changing partial areas, or new ones, respectively, have to be corrected or newly recorded. After that, the new normative calculation can be carried out immediately, and the desired tables can be printed.

With the NORPLA-84-BC project, a maximum of 1,700 plan positions can be processed. The processing of data is not complicated and is limited to one form. Present experience indicates that in state forestry enterprises, an average of 800 to 1,000 plan positions can occur for one annual planning; the project can also be applied to quarterly planning or any other time interval.

The NORPLA-84-BC project has already been turned over to 12 state forestry enterprises or worked out in the organization and computer center (ORZ) for enterprises still without business computer. Training courses for this project were held at the central enterprise academy in Grillenburg. For those interested in NORPLA-84-BC, the ORZ is willing to hold training courses or give instructions on the business computer. At present, the project is being revised and adapted to the nomenclature of the new 5-year plan so that it can be used in the planning for 1987 on a broad basis.

The revision also guarantees that the BC project available for the 1987 planning can also be used for proper timber utilization planning, and for having a uniform data base for further target projects to be developed.

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GERMAN DEMOCRATIC REPUBLIC

# FORESTRY COST ACCOUNTING REVISED FOR IMPENDING 5-YEAR PLAN

East Berlin SOZIALISTISCHE FORSTWIRTSCHAFT in German Vol 35 No 7 (signed to press 10 May 85) 1985 pp 196-197

[Article by R. Luther, chief ranger, Potsdam; Institute for Forestry Research Eberswalde; Organization and Computer Center Potsdam; ZAK Planning, Accounting and Statistics: "Organization and Development of Cost Accounting and Statistics in the Years 1986-1990"]

[Text] With the further development and description of forestry planning methodology for the years 1986-1990 on the basis of the order regulating the planning of the GDR national economy during 1986-1990 (GBl. special issue 1190 a), there are also consequences for organizing cost accounting and statistics in the sense of uniformity of planning and of cost accounting. The decisions to give greater responsibilities to rangers and head forest rangers, the planned revision of legal regulations on cost accounting and statistics, and lastly, references and requirements from practical life, demand appropriate considerations and conclusions.

Based on these requirements and the planning guidelines for forestry, developed by IPE (Institute for Forestry Research Eberswalde) in direct cooperation with central authorities, ZAK Planning, Cost Accounting and Statistics, and other representatives with practical expertise, the following important changes in individual cost accounting sections and applied electronic data processing projects are planned as of 1 January 1986.

## Fixed Asset Accounting

On the basis of new nomenclature and the list of depreciation rates for fixed assets *), a change in assigning fixed assets will have to be made in some instances. This has consequences for the 1986 planning. The organization and computer center (ORZ) of the Institute for Forestry Research Eberswalde will provide technical and organizational help in this task to the state forestry enterprises. In addition, in 1986,

*) Order on depreciation of fixed assets of 3 Oct 84 (GBl. special issue 1124)

differentiated depreciation computations according to the principles of cost accounting will for the first time be carried out by computer for the 1987 plan period. This will give support to state forestry enterprises in establishing planned depreciation costs.

As in other branches of our economy, our sector, also, must reevaluate fixed assets. This will probably be done on 1 January 1987. ZAK Planning, Accounting and Statistics will carry out the organizational preparations together with the ORZ of IFE on orders of the chief forestry department, and in this task, also, state forestry enterprises will receive computer assistance by ORZ.

Material Accounting

With the introduction of the electronic data processing project MR 85, ways of differentiated consumption accounting and inventory control are offered to state forestry enterprises, to be freely selected by them. This gives the enterprises a good chance to create meaningful bases for the planning of future time periods. The enterprises' product lists, based on the binding product framework, take better account of specific needs and increase clarity.

Manpower Accounting

The organization of manpower accounting takes central requirements into consideration and thus, also, the planning guideline for establishing society's labor force. Changed definitions and assignments of working hours and periods of idleness are taken into account in the appropriate list printings.

Cost Accounting

The changes and amendments to the framework of types of performance and cost centers must, naturally, be the basis for organizing cost information. Also, better cost information for rangers and head forest rangers had to be carried out. Furthermore, there was the requirement to make visible the contribution of the individual cost centers to the fulfillment of the item "net production."

At the beginning of 1986, target-and-actual-figures accounting will be possible on the ranger district level, assuming that the costs which can be influenced by the rangers are predetermined. Incidentally, this principle must apply to anyone responsible for cost centers.

Accounting by ranger district is organized in the following manner:

| Type of performance | Type of cost | Actual hours | Amount Target | Actual | ME | Fulfillment, % |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| Costs Target | Actual | Fulfillment, % | Actual Proceeds |
|---|---|---|---|
| 8 | 9 | 10 | 11 |

--Adding up performance types, LAB, ranger district.
--No proof of standard costs of actual production. It is assessed through comparison of performance by quantity and value.
--Proceeds from additional initiatives by forest rangers can be proven. These proceeds are not taken over automatically from performance accounting.

For the chief forest ranger, in order to assess plan fulfillment as to quantity and value of the rangers' districts in his charge, a summary is prepared as follows:

| Performance type | District | (Items 3-10 as in ranger district accounting) |
|---|---|---|
| 1 | 2 | (3-10) |

| Actual costs Material | Coop.performance <?> | Wages | Actual Proceeds |
|---|---|---|---|
| 11 | 12 | 13 | 14 |

Adding up performance type, LAB, BA (Chief forest ranger)

In this system, plan fulfillment of individual performance types by rangers' districts is proven in concentrated form; the most important cost categories are listed in subgroups.

This accounting by rangers' districts and the chief forest ranger's office requires, of course, that target tasks are subdivided into these structural units, based on managerial forest range planning (partial area planning).

The use of present potentialities shows that accounting by rangers' districts has gained in importance. Cost center accounting is amended in the summary and expanded by several important indices. A number of state forestry enterprises demanded in the past that the production volume be established for individual cost centers, and corresponding indices be

derived. With this, the connection between enterprise accounting and internal accounting is to be preserved or established, respectively. These considerations were followed up, and as of 1986, each cost center is listed at the end of the issued cost center accounting.

| | Target | Actual |
|---|---|---|
| Production at enterprise price | | |
| Depreciations | | |
| Costs of material | | |
| Cooperation performance | | |
| Net production | | |
| AP/net production--PA | | |
| Cost rate | | |
| Cost rate of material | | |

This summary presentation is naturally of greater use if a comparison of target and actual figures is made possible. A high degree of consistency in assigning costs, precise establishment of the production volume on the basis of up-to-date price information for overall accounting, and lastly, correct recording of working hours to establish the share of full employment units are all prerequisites for precise accounting.

From this cost center accounting, a cost center comparison is provided for the manager of the enterprise, the special economic director, chief accountant or other management personnel in order to support management and control activities. This comparison will be printed with the following indicators for the cost centers of chief rangers' offices, central production units, wood-processing places, and production plants of industrial goods production:

| BA (cost center) | Technical costs | Wages | PA | Prod. enterprise price |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

| | Cost rate | | Net | AP/PA |
|---|---|---|---|---|
| SK | | MK | production | NP |
| 6 | | 7 | 8 | 9 |

(target/actual figures in percent)

This development and organization of cost accounting is to assist in the control and analysis of the reproduction process in the state forestry enterprise.

## Performance Accounting

Performance accounting adapts to the planning requirements of the production and sales process and ensures product-related accounting and proof of proceeds.

The state forestry enterprises also have the task of producing more consumer goods for the requirements of the population. This task, to a large extent political, must be reflected in product-related planning and accounting. There are references and regulations by the chief forestry section of the Ministry for Agriculture, Forestry and Foodstuffs which, however, after final discussion still need to be incorporated in the planning guideline. This will be done shortly, and state farm enterprises will be informed of the necessary definitions on assigning products and performances to the categories in question. Performance accounting, by using certain criteria for recording (index for goods deliveries and performances = KWL), provides flexible proof, to be adapted to the type of reporting, of the proceeds resulting from the sale of consumer goods. It is important to undertake appropriate assignment of products and performances already in the planning stage, and thus to ensure uniformity of planning and accounting in this instant, also.

In accordance with the the demands mentioned earlier for greater responsibility of forest rangers, as of 1986, performance accounting will also provide for proof of raw timber inventories. This offers state farm enterprises more possibilities for exact proof of raw timber from the time of being made available until its sale. Implementation of the principles issued by the Forester General on 17 January 1984 concerning proof of raw timber, from the time of felling until its sale, is thus being assisted.

As of 1986, the growing use of office computers will also include data recording of performance accounting, and invoicing. By using universal or standard programs, data recording creates the possibility of direct and immediate evaluation of the data. This is to provide short-term information for guidance and control of production and the sales process. There will be a later report on the use and range of such immediate analyses.

## Overall Account

Preparation of important information and indicators on the reproduction process in the state farm enterprise, and summarizing such information for the forestry department of the bezirk councils, lies at the center of the overall account. The survey of financial indices, in accordance with the financial plan (Plan 811), remains essentially unchanged in its structure. The survey of indices is being amended by including indices important for the 1986-1990 5-year plan period, such as net production, cost rate of prime costs, material costs rate, and lastly, the ratio of basic assets and allocation of basic assets.

As already stated, the production volume (production vis-a-vis enterprise price) for the entire enterprise, for production areas and for cost centers is ascertained. Additional calculations of the production volume, previously carried out in some state farm enterprises according to cost centers, can be eliminated in future.

As previously pointed out, inference of a number of indices, and thus the informative power of indices and financial surveys, depends on the dependability and topicality of performance recording and the evaluation basis (price data). If the correct determination of production vis-a-vis kPP and enterprise price, respectively, is not given, then indices derived from them, such as net production, cost rates, etc., must also be proven incorrect.

The above-mentioned surveys should be an important information basis for the management level of the enterprise. It is to be expected, therefore, that those in the enterprises responsible for economy, accounting and statistics, will create all prerequisites necessary for valid information. The chief accountants should include in their control activities the availability of necessary initial values and complete determination of planning and accounting information.

In conclusion, it is to be pointed out that accounting and statistics also have the important task of providing reference figures or bases for the planning of future time periods. This task can be accomplished only if unity between planning and accounting, between material and financial accounting, can be preserved and a high degree of orderliness can be achieved in all areas. The binding regulations of the planning and sector guideline provide the work principles.

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# VEB OUTLINES TIMBER INDUSTRY AGENDA FOR UPCOMING 5-YEAR PLAN

East Berlin SOZIALISTISCHE FORSTWIRTSCHAFT in German Vol 35 No 7 (signed to press 10 May 1985) 1985 pp 193-195

[Article by Dr sc R. Barth, R. Bernt, F. Duerre, H. Gierk, Dr H. E. Wuensche, Potsdam VEB Forstprojektierung: "Preparation of the 1986-1990 5-year plan by Forest Management"]

[Text] As already executed for the 5-year planning for 1976-1980 and 1981-1985, the VEB Forest Projection Potsdam at present is carrying out appropriate work for the 1986-1990 5-year plan. The work proceeds along the proven work lines established in the model system, NAREWA. This article serves to inform the forestry public on content and progress of this work. Simultaneously, understanding of the material to be handed over in 1985 to the management levels of forestry is to be improved.

## General Proceedings

Preparation of the 1986-1990 5-year plan on the basis of the NAREWA model system basically includes the following stages:

--Qualification of the timber stock data storer (DSWF)
--Establishing sustained felling capacity, utilization rates that can be implemented, and target utilization rate (WAFO)
--Development of a proposal for annual division of utilization and its structure according to types (JADI)
--Implementation of the target utilization rate through a process of regulating production of all structural units down to partial areas (PERP)
--Annual control of development of timber stock, through comparison of utilization and forest renewal planning and economic implementation down to the ranger's district level (KOWA)

## New Scientific Bases and Improved Methodology

In contrast with preparing the previous 5-year plans, for the 1986-1990 plan the following new elements will be incorporated

--Introduction of the new Tharandt fir yield table with three systems of yield power for the development of stands of slow, normal, and rapid growth

--Introduction of the new Eberswald beech yield table
--Differentiation of the oak yield table according to common oak and chestnut oak stands
--Within the state forestry enterprise, division of the territory according to special types of operation with separate listing of annual timber felling capacity.
The following groups were excluded as special types of operation: Smoke damage areas I, II, and III, protected mining areas, state hunting areas and game research regions, centrally approved recreational forest areas
--Taking into consideration utilization restriction in administration group I
--Use of improved calculating systems for utilization and forest renewal planning of partial areas
--Use of improved restrictions of stock target types for the 1986-1990 plan with partially modified optimizing of tree types
--Special consideration for snow-damaged areas in the state forestry enterprises or bezirks, respectively
--Preplanning of utilization and reforestation of partial areas on the basis of aerial photographs or new devices of degrees of latest damage in the RS area of the Erzgebirge through forestry management
--Selective timber reduction according to tree types on the basis of wood decay or other factors damaging to timber
--Considerably improved and enlarged statistical program, particularly for calculating sustained felling cpacity, and possible utilization of stands less than 40 years old
--Detailed coordination of results in several days of consultation between the chief forestry department and the forestry sections in the VEB Forest Projection Potsdam.

Methodology and Special Features of Determining Sustained Felling Capacity 1986-1990 According to the NAREWA/WAFO Project

Inferences were made on the basis of DSWF [timber stock data storer] as of 1 January 1984. Within the framework of regulations on yield, data were prepared with the help of the electronic data processing model WAFO for 122 types of special operations and 6 groups of stock types.

--Area timber yields according to EBSA 86/90/95, and corresponding restrictions
--Implementation of improved ultimate use according to OPTINUTZ
--Determining preplanning and ultimate use planning, according to stock and tree types, and utilization planning for natural regeneration work.
The evidence was prepared in tables on types of stock, tree species and age groups, and classification outline.

After determining the use according to types of special operations, the results were summarized in tables of over-all operation according to age groups, giving the detailed structures of types:
Stacked wood, raw long timber 7 to 10, and larger than 10 cm, and timber classifications 1b, 2a, 2b....larger than 4.0.

In addition, to establish the rate of possible utilization in the area of stands up to 40 years of age, surveys were prepared, divided into types of trees and heights in 1-meter increments according to areas, supply, and use in this age group. Differentiated assumptive tables were prepared, in order to register possible utilization in this area, also. This made it possible to determine the complete extent of sustained felling capacity (NHS) and to prepare proposals for state plan requirements (target utilization rate).

The utilization amounts for 1986-1990 established on this basis, and coordinated with the bezirks councils in intensive consultations, formed the basis for their use in the JADI model which prepares first proposals on annual differences of use, divided into supply plan types on the bezirk level, and later, on the enterprise level (ORZ).

From the development of sustained felling capacities, and inventory in hectares, for the period 1971 to 1990, the following general conclusions can be drawn:

1. From the continuity of development of the sustained felling capacity since 1976 it can be deduced that the use of a uniform procedure of NHS calculation in the form of the NAREWA model system is an essential factor in making these calculations more objective, and that subjective influences, as they still appeared in the period 1971-1975, have been eliminated. This provides certainty to the forestry management in making basic decisions.

2. The tendency of lowering the felling capacity in areas damaged by snowbreak, becoming effective at the time of calculating the 1986-1990 plan, show the effect of NHS computations on such events.

3. The NHS, calculated at particular dates (every 5 years), shows that the sustained utilization possibilities for raw timber proceed on an uninterrupted course.

This demonstrates that forestry management can, and has lived up, to its task of being "the custodian of permanence."

The structural problems of sustained felling capacity, which exist in some age groups, are not to be glossed over in this report. However, it is quite possible to do justice to the task of forestry management, in the sense of striving for permanence, to provide for constant and even increased timber yields, if the lumber industry succeeds in utilizing efectively all the wood grown. On the occasion of the forestry conference in Leipzig, our First Deputy Chairman A. Neumann posed this task to the lumber industry, and one can say today that first successes are already noticeable in this area.

4. There is a close connection between the tendencies of rising, falling, or constant sustained felling capacity on the one hand, and the change in hectare reserves on the other. The structural problems contained therein,

particularly those of age and types, are being discussed in close consultation with the chief forestry department and the forestry section in preparing the 5-year plan. The result is a proposal to issue state plan requirements as a "target utilization rate," which will be incorporated in the 5-year plan project, PERP.

Content and Meaning of the 5-Year Plan Project NAREWA/PERP.

As already stated, the task of this part of preparing for the 1986-1990 5-year plan consists in developing a forestry management project, subdivided down to partial areas, for the above-mentioned period via a process of production regulation based on the target utilization rate, and to make it available to all state forestry enterprises. This concerns

--Selection of the necessary stands of ultimate use on the basis of optimizing the order of priority
--Planning the amount of prior use with the aim of quickly achieving the optimal surface area
--Planning the amount of utilization of pre-regeneration stands
--Selection of young stands to be cared for for the first time during the 5 year period, and follow-up selective cutting in the stands less than 40 years old
--Proposals for optimal target stock types for forest renewal
--Pointing out choices for preplanting, underplanting and transmutation
--Description of the situation of resinification and its possibilities.

In addition to the work mentioned above, the qualification of DSWF of 1 January 1985 has great significance for this step (see guideline issued to all state forestry enterprises and all rangers' districts). VEB Forest Projection Potsdam did spot checks in 17 state forestry enterprises, testing the accuracy and conscientiousness of this work carried out by the state forestry enterprises.

The results can be summarized as follows:
In addition to very positive examples, obvious shortcomings show up in a number of cases. In particular, they concern subdivision into utilization groups, essential for objective utilization analysis, and addressing indices (transmutation stands). This also holds true for manual indication of target plan utilization of stands, as provided for in regulations for defined stand areas.

We hope that, on the basis of the checks carried out, the shortcomings noted were eliminated immediately.

However, where this was not done and where similar faults exist, they will be reflected in the most varied forms in the actual and planning data. The GDR is the only country where such a thoroughly structured 5-year forest management project is being developed for state forestry enterprises. This progress must, therefore, be recognized through conscientious and expert work and be supported by rangers and head forest rangers.

The following data are being made available by VEB Forestry Projection Potsdam:

--Tables of age groups with 10-year sustained felling capacity (from the enterprise level on upward); assumptive table
--Tables and listings of 5-year targeted utilization rate from rangers' level on upward, such as:
--Table on types and age group (SORTAB)
--Tables on young stands
--Survey of all existing tree types with area, supply and utilization according to three age groups
--Compilations for forest renewal, possibilities of preplanting and underplanting
--Compilation of transmutation stands
--Compilation of stands in the process of resinification, and resin potential
--List of individual areas for stands of ultimate use and reserve stands in the planning period, with classification of types, combined with reforestation, resinification and transmutation, and stands of preregeneration character
--Surveys on areas, reserves, and utilization for beech stands of natural regeneration (as of head forest rangers, for selected state forestry enterprises).

In addition to the scientific-technical improvements in the 1986-1990 5-year plan project described above, the following facts become effective in NAREWA/PERP:

1. For the area of pre-utilization stands up to 39 years old, centrally coordinated utilization restrictions go into effect in the 5-year plan, as to tree types and groups. Cutting to the restriction point basically follows two areas of urgency:

a) Stands of defined height and with plan utilization per hectare, dependent on height and coordinated with the chief forestry department, oriented toward 10-year intervention. If this area of stands is not enough to cover utilization restrictions, there will be more felling up to the restriction limit for
b) stands outside the defined heights, establishing 5-year utilization according to utilization tables, and directing the urgency of utilization according to regulations on direct dependence on height (lessened urgency of selective cutting with decreasing height of stand).

2. Account books with 10-year permanent planning (also see Barth and others, SOZIALISTISCHE FORSTWIRTSCHAFT, Nr 6/1985), bound in A-5 format, as a work basis for forest rangers are being provided for the following state forestry enterprises:
Rostock, Malchin, Torgelow, Bernau, Gardelegen, Oranienburg, Luckenwalde, Fuerstenberg, Strausberg, Schwarzenberg, Duebener Heide, Dresden, Wermsdorf, Marienberg, Blankenburg, Schleiz, Hildburghausen, Jena, Ilmenau, Neuhaus, and Sonneberg.

3. In SOZIALISTISCHE FORSTWIRTSCHAFT 8/1985 (Barth and others), suggestions are made on how to use the documents for planning and operational measures, including development of HEK [hectare costs?] In addition, detailed explanations are given in the planning information of NAREWA/PERP 1986-1990, and also in the new forestry principles just published.

4. The NAREWA/PERP documents will be delivered as of the second half of 1985 and, due to the size of the project, will take till the end of the year since parallel computation of sustained felling capacity and secondary felling (NHS and NS) and the production of the account books require increased expenditure of computation, printing and preparation.

Control of Timber Stock (KOWA)

In accordance with many requests, the familiar KOWA lists will be improved and expanded for the 1986-1990 period.

In addition to a number of improvements in the contents (without giving up the basic layout), expansion to the level of ranger's district must be mentioned in particular.

In this manner, forest rangers have appropriate surveys available for their territories for planning, implementation and timber stock development, which result at the end of an accounting year.

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# NEW ELECTRONIC GROUND FACILITIES FOR CIVILIAN AIR TRANSPORT

East Berlin INFORMATION DER ZIVILEN LUFTFAHRT in German No 5 1985 (Signed to press 30 Apr 85) pp 121-125

[Article by Reinhard Koellner, deputy operational director, Flight Safety Department, INTERFLUG, Berlin-Schoenefeld]

[Text] Thirty years of civil aviation also means 30 years of performing our national duty in civil flight safety over the territory of the GDR. The prerequisites for performing this mission were created with Soviet assistance in 1955, so that today a highly capable flight safety operation by INTERFLUG is assured. Throughout its history, however, a difficult road was travelled. Even though the capacity and technical equipment of the flight safety service in the GDR was characterized in the second half of the 1950s by a relatively small amount of civil aviation, today the importance of a safe flight control has grown with the increase in air traffic in our republic. Step by step, the flight safety system was developed by improving technologies and by the use of modern technical facilities and systems, until it attained a level which meets today's severe, international requirements.

The workers of the Flight Safety Department have proven to be reliable partners in securing domestic and international air traffic. With high technical ability, discipline and motivation, they direct aricraft safely and reliably over the territory of the GDR, cause no deviations from the flight plan, transmit every message to the receiver without information loss and within the required time, master the extensive and complicated flight safety, communications and computer equipment and ensure their constant readiness.

One task of the Flight Safety Department, which will be discussed in detail here, consists in the constant perfecting and refinement of the flight safety system, including the organization and required scientific-technical pioneering work, and preparations and cooperation in implementing investments in the area of flight safety equipment.

The capability of a flight safety system generally depends on the level and reliability of its component technical-technological systems and facilities, among which are:

--ground based facilities for aircraft navigation in the air routes, commuter areas and airport control zones (including undirected longwave and medium wave radar, UHF beacons, range measuring devices);

--instrument landing systems and precision approach radar facilities;

--radar facilities for monitoring and guiding flight movements, including computer processing and display of radar data (automated flight control systems);

--wire-linked communication systems for information exchange with all domestic and international flight control participants via telephone, teleprinter and data networks, including computer-based exchanges;

--documentation and signaling equipment;

--facilities for monitoring and control of technical equipment.

In mastering the task of refinement of the flight safety system, it was important that in the GDR there was neither a scientific-technical basis nor technical facilities for production of the necessary equipment. Since industry in the GDR did not develop or produce any flight safety equipment, in agreement with specialization contracts in COMECON, it was and is necessary to provide for the needs of civil aviation in the GDR via imports. This situation resulted in a close cooperation with appropriate institutes and manufacturers in other countries, primarily within COMECON, in order to adapt the needed technical systems to the conditions prevailing in GDR civil aviation.

The problem was to achieve the greatest possible improvement in the flight safety system with the smallest possible investment. Consequently, the project was oriented to be generally independent of imports from the non-socialist world. Flight safety in the GDR was always one of the first users of new flight safety equipment developed in other socialist countries, and often contributed to the testing and refinement of this equipment. The creativeness of the technicians and of university and technical school cadre, was utilized to develop the technical systems with the financial and material means made available to the department.

Notable successes were achieved, e.g., in increasing the service life of high-quality technical facilities. Through careful maintenance and specific measures, facilities were operated far beyond the normal service life, at full functionality while maintaining the required quality parameters. Thus, costs for spare parts were reduced and valuable funds saved for other important uses.

Great efforts were undertaken in the past to intensify maintenance capability. Through the use of modern maintenance technologies, by reworking the maintenance guidelines on the principle of our own years of practical experience in operating the facilities, and by a nearly completed transition from vacuum tube to semiconductor technology, we succeeded in reducing the absolute expense for maintenance and debugging, in spite of constantly increasing amounts of equipment. The released labor force was used for building up and strengthening operational efficiency. In this manner, in recent years a high-performance department has been created, which has both personnel and technical equipment to perform much greater tasks in the future. Special technical equipment for use in flight safety in the GDR should be developed domestically more than before, and built-in small series for domestic consumption.

As a result of the collective efforts associated with solving the problems of scientific-technical pioneering, in recent years a series of scientific-technical results have been achieved about which the workers of the Flight Safety Department are justifiably proud. Three examples shall illustrate the methods and means of the modernization of flight safety achieved in the GDR.

Development of the Automated Flight Control System, Gamma 1

One important means for improving both flight safety and the permeability of an air control system is the use of radar technology. Through its use, the air controller has a real display of the air situation, based on radar echos from the aircraft. The air controller can use ground-air communications to affect the flight paths of an aircraft, and thus assure safe aircraft intervals. Compared to flight control methods not using radar information, a much shorter stacking interval is possible, while maintaining the same safety.

In civil aviation in the GDR, radar equipment has been used since the beginning of the 1960s. First, surveillance and precision approach radar facilities from the CSSR were installed at the Berlin-Schoenefeld airport; in 1969/70 two medium-range radar facilities, model AVIA-B from Poland were installed in the South and North of the GDR. The airports at Dresden-Klotzsche and Leipzig-Schkeuditz were also equipped with radar.

The approval of the COMECON complex program of 1971 was of great importance in the development of socialist economic integration of COMECON countries. This agreement specified the development, procurement and broad introduction of automated flight control systems (AFLS) for flight safety.

In the 1970s, within the framework of a long-term scientific-technical and commercial cooperation agreement between the Institute for Communications Technology PIT in Warsaw, the all Union Institute for Radar Equipment WNIIRA in Leningrad, and specialists of Interflug, there occurred the conception, development, creation and operation of the first automated flight control system of the GDR--Gamma 1.

The implementation took place in two stages:

In the first stage in 1977/78, a radar complex was erected near the Berlin-Schoenefeld airport; it consists of a Polish airport primary radar system AVIA-D and a Soviet secondary radar system KOREN (Figure 1).

In stage two in 1979/80, a complex system was installed, tested and put into operation; this system provided computer processing and display of secondary radar data and for certain flight plan data, based on the Soviet APOI-ANIS radar data extractor, and the Polish ODRA-1305 computer system. The AFLS Gamma 1 is not a series produced system, which caused problems for interflug. Series produced components like AVIA-D, KOREN, APOI, and ODRA-1305 had to be linked and a high-performance software developed for the overall system. The appropriateness of this method was confirmed, in spite of a number of difficulties. The INTERFLUG specialists participating in the solution of this problem, were primary motivators in this project and created important scientific-technical rerequisites.

Figure 1: Antenna and Stationhouse of the AVIA-D-Koren Facility

The introduction of the AFLS Gamma 1 took into account the need to improve the permeability of the civil controlled airspace, especially in the airport control zone and near the Berlin-Schoenefeld airport. The need for this arose from the fact that:

--the number of flights managed by flight safety rose over 200 percent from 1965 to 1975;

--in coming years, additional increases would have to be handled;

--due to the airspace structure in the Berlin-Schoenefeld area, and due to the traffic concentration there, a particularly complicated situation arose which had to be defused by an automated system.

With the introduction of the AFLS Gamma 1, the following advantages were achieved over conventional, non-automated radar control.

1. By using secondary radar (SSR), several objective disadvantages of the primary radar can be offset. In addition to the radar coordinates of aircraft determined by the primary radar, the barometric altitude and identity code can be determined by the secondary radar. Due to the greater interference resistance of the SSR principle, the detection probability of aircraft echos is increased. Interference echos from meterological phenomena and fixed targets can be generally eliminated.

2. Through digitizing, real-time processing and reproduction of synthetic radar data on the screens, it became possible to provide a much better display of radar data for the flight controller. The digital target symbol, connected with the identification and altitude data, relieves the flight controller of considerable, time-consuming routines and thus allows the simultaneous control of a greater number of aircraft, or the flight controller has more time availzble for a fundamental analysis of the air situation and corresponding decisionmaking.

3. Through the computer-based correlation of flight plan and radar data, additional possibilities resulted for optimizing the information relationships. For instance, the radar flight controller automatically sees a list of aircraft awaited in his area of responsibility within a given time.

Figure 2: Air Situation Display of the Gamma 1 Automated Flight Control System

From the advantages cited above, it is clear that the AFLS Gamma 1 is an important step toward increasing the capability of the flight safety system in the area of Berlin-Schoenefeld. The flight controller has a powerful technical aid which relieves him of considerable routine tasks, affords better working conditions, and provides a creative decisionmaking aid.

Further scientific-technical work in this area is being concentrated in two areas:

1. Extending the service life and stepwise modernization of the Gamma 1 system.

For this purpose, a general overhaul of the AVIA-KOREN radar complex is scheduled for 1986 in order to extend its operationality beyond the year 1990. Both a new developed weather channel and assemblies for adaptive radar aquisition will be installed into the system, which will improve capabilities of the radar complex.

For the ODRA-1305 system, a modernization is being prepared; this will consist of replacement of the present ferrite core memory block of the working memory of the CPU with a semi-conductor memory. Thus, the maintenance effort and operating costs can be tangibly reduced.

2. Creation of the necessary scientific-technical prerequisites for the second generation automated flight control system for the entire area of responsibility of civil aviation of the GDR. The goal is to organize a computer-based multi-radar data processing activity for all heavily traveled flight safety control areas (based on double radar coverage), to integrate all civil flight safety control stations into an automated flight control system, and to create a greater degree of automation in flight planning data processing, including automated instrument landing.

Solution of this problem will occur through proven international cooperation with the WNIIRA Institute in Leningrad and the PIT Institute in Warsaw.

Introduction of Modern Instrument Landing Systems to GDR Airports

Equipping GDR airports with electronic landing aids has always been an important point in civil aviation investment policy. Besides the aspect of increased flight safety for the landing process--the most difficult part of the flight--weighty economic considerations also play a role.

Landing in poor visibility will for the first time allow for planned air traffic in a real sense, and avoid traffic jams at airports and any trips to secondary airports due to meterological reasons.

Instrument landing systems (ILS) permit a smooth transition from radio beacon or radar-directed cruising flight to landing. In 1958/59 Soviet ILS systems type SP-50 were installed at the civil airports of the GDR. With the increasing number of flights by capitalist airline companies to Berlin-Schoenefeld, in 1961/62 the need arose to import and put in operation, facilities by Western manufacturers which corresponded to the ICAO-standard.

The world-wide orientation toward the ICAO-standard ILS led to the decision of the Soviet Union to develop a corresponding system designated the SP-70. During the development phase under the leadership of the Leningrad Institute WNIIRA, the inclusion of flight safety specialists of the GDR was begun for the purpose of working out the siting conditions and national flight testing.

In 1977/78 the first, new SP-70 instrument landing systems were exported into the GDR to replace the ageing SP-50 ILS systems. This took place while the international market for such systems was still controlled exclusively by capitalist firms.

With the SP-70 system, category III instrument landings are possible by aircraft having appropriate, on-board equipment. The preparations for using the SP-70 system at the Berlin-Schoenefeld, Leipzig and Dresden airports, proceeded within the framework of a scientific-technical cooperation agreement with the Soviet manufacturer. The core of these preparations was the selection of optimum sites.

The quality of the ILB beam, i.e., the approachability in manual as well as in automated control depends decisively on the selected site of the antenna systems and on the surrounding terrain. Through scientific-technical analysis, savings in the amount of DM 4 million were achieved over the originally proposed method (terrain fills, real estate purchase etc). One important prerequisite for this was a high level of technical knowledge, healthy risk-taking, constant striving for the optimum solution, and close, friendly cooperation among technicians of the Soviet producer and INTERFLUG.


Figure 3: Instrument Landing Systems at GDR Airports

Key:

1. Initial operation March 1981 (operations stage (()
2. Initial operation December 1978
3. Initial operation November 1979
4. Initial operation March 1979
5. Initial operation August 1983

The set up of the approach markers at the Dresden airport proved to be particularly difficult; an unfavorable relief required the erection of a steel frame platform for the antenna system. A solution was found to this problem which allowed the assembly of an extensive antenna system in only 90 minutes. Details are described in the following article by W. Trempler.

Whereas, for economic reasons, the majority of the SP-70 systems are used in operations stage I as per ICAO, in 1980 runway 25L in Berlin-Schoenefeld was equipped for ICAO stage II landings, which corresponds to a minimum 30 m cloud ceiling and 400 m horizontal visibility. Additional prerequisites were the creation of all needed runway lights, communications and meteorological conditions--including a secure, uninterrupted power supply to these systems.

Soviet industry also offers the refined SP-80 ILS, whose installation at the Erfurt airport is planned for 1987. Scientific-technical cooperation between INTERFLUG specialists and the Soviet manufacturer has already begun.

The corresponding tasks of the Scientific and Technical Plan are already oriented to the year 2000. To the extent that technical progress penetrates into additional areas of daily life, so also will new achievements in air travel come into effect. A new flight safety system for even more demanding landings is the microwave landing system (MLS), whose world-wide introduction was decreed by the ICAO to replace the ILS over the next 15 years. MLS will open up entirely new potentials for a safe landing approach, while optimizing the economic and ecological conditions. As an ICAO member, the USSR is also participating in the development, design and production of these new systems. GDR flight safety specialists have undertaken the task to making a contribution to the creation of this new system on the basis of their positive experiences gained in the cooperative development of the SP-70 system.

Perfecting the Facilities to Survey Flight Safety Ground Systems

An important contribution to the constant assurance of flight safety is provided by the technical testing of flight safety equipment as a part of the State Air Traffic Inspection of the GDR (see article by W. Zinnert, page 139), through regular inspection of the flight safety equipment. Performance of periodic inspections and flight surveys is specified both by international and domestic regulations (ICAO Annex 10, Flight Safety Test Regulations).

Through our own research and development work, the necessary measuring equipment has been developed and refined since 1963. This included such improvements as the creation of measuring areas to survey instrument landing systems as per ICAO category II, the simplification and acceleration of evaluation of measured data by using computers, continuing improvement in reliability and stability of on-board measuring systems and the automation of calibration processes during the survey flights, and not least, cooperation in equipping the GDR-STP aircraft as measuring aircraft.

Since January 1985 an automatic target tracking device--the newest product of the Flight Safety Testing Directorate--has been in practical testing; it is to be used to solve the following tasks: In the survey of antenna diagrams from course and glide-path transmitters of the ILS, it is necessary to measure the horizontal or vertical deviation of the measuring aircraft from the ideal course of glide-path line from the ground, whereas the crew of the measuring aircraft are following the electronic course or glide-path by means of the ILS crosshairs in the cockpit. When using conventional methods for this purpose, an optical device with manual tracking (theodolite) is employed. The value

measured by the theodolite is received as electically coded signal on board the measuring aircraft, and is processed and stored there with other measured values. Whereas the objectively verified transmission, evaluation and recording accuracies meet the high demands of accuracy, when tracking the measuring instrumentation by the theodolite observer, a subjective error may occur. Automation of this tracking process by means of the target tracking device will serve to eliminate the subjective factor and to simplify the work of the theodolite observer, who often had to track the measuring instrument for hours, even in bad weather.

The instrument was developed from a video camera with electronic evaluation of target position and will be used in future instead of the theodolite. It automatically takes over the function of the theodolite observer. The survey process can be monitored by the measurement surveyor using a monitor from a vehicle or nearby building. To reduce interference on the automatic survey process due to light reflection from the surface of the measuring aircraft, the measuring aircraft has a matt gray paint.

The requirement of such survey instruments, even in unfavorable meteorological conditions, is high stability and accuracy of oepration, which are quite good in this device.

Systems with automatic target acquisition and tracking have been produced heretofore only in the non-socialist world. Prices for such measuring systems fluctuate on an order of at lease 1 million DM.

Using the example of the development of the automatic target tracking device, it is clear that even a relatively small group is able to transform a world-leading idea into practice, by using intensive effort, concentration of available scientific-technical potential, and by utilizing existing components and assemblies.

One main point of future scientific-technical efforts in the Technical Testing of Operational Flight Safety will be the increased use of microcomputers on board the measuring aircraft, in order to improve the acquisition, processing, storage and evaluation of data generated in the survey of flight safety facilities.

The illustrated examples stand for a number of successes by the employees of the Flight Safety Departments, which resulted in improvements in the flight safety system of the GDR over the 30-year existence of civil aviation.

It should be made clear what efforts were needed to create a modern technical basis, and what significance this work has for a safe and planned movement of air traffic. With the completion of these tasks, ever new requirements are evolving for the flight safety system, as are new possibilities for refinement.

Besides the above-mentioned goals of further scientific-technical work, the following measures are needed to perfect the flight safety process:

--full utilization of the technical potentials of computer-based teleprinter exchange AFTN for the creation of the NOTAM database, and for flight plan processing and touchdown,

--enhanced usage of microcomputers to improve process sequences in operational flight safety and development of high-performance software;

--cooperation in the structuring of the automated INTERFLUG system of managing the reproduction process JADRO and complete utilization of the advantages of this system for the partial processes of the Flight Safety Department;

--cooperation in the establishment of the simulation and training center of Civil Flight Safety of the GDR within the framework of the INTERFLUG Operations Academy, and development and production of simulation equipment by the Flight Safety Operations Technical Center;

--establishment of Youth Researcher Task "Language Output Device Atis/Volmet" with a single activity at a work station through the use of a speech robot to release some workers for other tasks;

--reconstruction and modernization of technical facilities of the Flight Safety Service Centers in Leipzig, Dresden and Erfurt to further improve the working conditions and reduce technical maintenance effort.

As an additional benefit of the successful completion of a demanding project, in the past the early inclusion of future users has been an advantage. And in the handling of future problems, it must be ensured that every worker's suggestion, every proposal from the planning discussions, every suggestion from new employees and every KDT recommendation is properly checked and kept under control through development and introduction. Solely within the framework of innovative proposals was it possible to save DM 2.49 million in the period from 1980 to 1984 in the Flight Safety Department. The participation of an average 26.9 percent of the employees of the department in the innovation process is evidence of its importance.

The creativity and initiative of the workers of the Flight Safety Department indicate that the pending, demanding tasks for further perfecting of the GDR's flight safety system will be solved as a prerequisite for the continual, safe and reliable service of each and every flight over the airspace of our country.

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GERMAN DEMOCRATIC REPUBLIC

BROWN COAL PRODUCTION, REFINEMENT EMPHASIZED

East Berlin EINHEIT in German Vol 40 No 8, Aug 85 (signed to press 11 Jul 85) pp 720-726

[Article by Dr Horst Wambutt, department head of the SED Central Committee: "New Demands for the Production and Refinement of Raw Materials for Energy"]

[Text] The country's continuing and effective energy and raw material supply is of fundamental significance to the development of the production forces. It therefore assumes an outstanding place in our party's economic strategy. In keeping with the guideline pursued from the very beginning, it is important to procure the existing domestic fuels and raw materials efficiently and to refine them to the maximum degree with even greater consistency through our own high performance levels.

The goal-oriented implementation of our economic strategy under the leadership of the SED has produced good economic results which proved themselves a thousand times over and which essentially contributed to strengthening the GDR's position as a cornerstone of peace and socialism in Europe. Our industry's net output over the past 4 years rose an average of 7 percent and the national income--revealing a definitely rising trend--went up by 4.4 percent, while the utilization of material and energy was reduced in specific terms by 6 percent.

Precisely because it proved itself in real life, this economic policy, which is an organic component of our party's overall policy aimed at the further fashioning of the developed socialist society in the GDR, is being continued resolutely. In his trend-setting speech at the Tenth Conference of the Central Committee, Comrade Erich Honecker stressed this emphatically: "We have been pursuing our course, which is aimed at the people's welfare, for a decade and a half under the most varied conditions with a high degree of continuity. New requirements were met by new achievements. The accomplishment of the primary mission will continue to determine our work in long-range terms. With the help of this policy, the SED will cross the threshold of the year 2000."[1]

The consistent continuation of this policy calls for a steady increase in labor productivity. As Lenin proved, it is in the final analysis decisive for the victory of the new social order. The combination of the scientific-technological revolution with the advantages of socialism is the decisive link

in this chain and is therefore at the very head of our party's economic strategy. The production forces are developing in the process of the scientific-technological revolution which keeps accelerating throughout the world. This also applies to mining engineering and technology. The current phase of our work in mining and in the refining of mining products is increasingly characterized by the successful effort to turn modern automation technique--as the tie-in of microelectronics, robotics, computer technology, and data processing with new technologies--into an important factor in raising labor productivity.

By way of preparation for the 11th Party Congress of the SED, the workers, the scientific-technological intelligentsia, and all workers in the GDR mining sector are making great efforts to resolve an entire series of new questions that have matured in scientific and technical terms and to apply the solutions in the economic activity of the combines. They view this as their most important contribution to our country's economic dynamics and political stability.

Increased Utilization of Scientific-Technological Progress for Raw Brown Coal Extraction

In recent decades, the country's brown coal industry achieved results that were recognized worldwide. During those years, the GDR has developed into a leading country in terms of the mining and refining of brown coal.

The strategically extremely important assignments given by the Eighth Congress of the SED in the year 1971 to use domestic brown coal comprehensively as energy source and raw material at the right time created favorable prerequisites so as to enable us quickly and successfully to respond to the altered conditions on the world market at the start of the 70's. Since then, our brown coal mining effort has been stepped up quickly and the use of brown coal and brown coal products was pushed in the country's national economy. Between 1980 and 1984 alone, the extraction volume went up by 38 million tons. This year, we will mine more than 310 million tons of brown coal. This important structural change in primary energy utilization in favor of domestic brown coal was an absolute necessity deriving from the newly developing economic conditions. At the beginning of the 70's, the specific fuel costs for heat generation in the case of the various fuels (for example, brown coal, hard coal, natural gas, or fuel oil) were relatively the same but they have since then gone up considerably in the case of imported energy raw materials. Compared to brown coal, they amount to more than double in the case of hard coal, while the costs went up about three-fold in the case of natural gas and more than six-fold in the case of fuel oil.

During that time, the GDR's socialist planned economy once again proved that an economy, planned and managed in keeping with the principles of democratic centralism, can with a high degree of effectiveness quickly respond to altered conditions and guarantee continuing dynamic growth.

On the basis of our party's resolutions, the dominant position of brown coal as a foundation of the GDR's energy and raw materials supply will be further expanded also in the future. Here the important thing is not only to extract a larger volume but to take qualitatively new steps in order to raise labor

productivity and lower costs. What are the main points emerging here as far as the implementation of scientific-technological progress is concerned?

We need the further perfection of large-scale strip-mining equipment now in use. The GDR has an internationally recognized strip-mining technique and technology. But this technique must be further developed in such a manner that the future geotechnical conditions and also any possible extreme winter situations can be mastered completely and with good economic efficiency. Future strip mines will be smaller, they will be located deeper down, and they will reveal more complicated geological and hydrologic mining conditions. The equipment complexes must increasingly be adapted to these specific technologically-conditioned employment situations. It is furthermore necessary to expand the process automation of the strip-mining complexes.

Special attention must be devoted to conveyer system technology because, after all, it yields twice to three time the productivity compared to other technologies in use. That includes the development of wider and longer conveyer systems as well as energy-saving power systems and electrical braking.

We must step-by-step make the transition to computer-supported complex process automation of the entire conveyer and transportation system in the strip mines. Here is what that means: using microelectronics and modern data transmission and processing systems, the important thing here is to include conveyance, coal transloading, the shipping organization, and the transport shipment as such all the way to the consumer in automatic production control in a step-by-step manner.

The auxiliary equipment for repair and trouble-shooting, for the transportation of equipment and material, for conveyer belt moving, conveyer belt cleaning, bearing pulley exchange, lifting work, for the production and maintenance of vehicles, as well as for mechanical surface water drainage on the seam floor must be improved qualitatively and must be applied on a broad scale. After all, the concentrated and complex utilization of modern auxiliary equipment is the source of decisive impetuous for effectiveness and productivity as well as for the reliable operation of the strip mines as sources of supply. Economic calculations prove that a productivity gain of 20-30 percent is possible especially in this area on short notice.

A first-ranking criterion for automation and complex mechanization in strip mining of course continues to be represented by the unconditional reliability of the conveyer system even under the most complicated weather conditions. Safety engineering and the management and data relationships must be able fully to cope with this also when we use microcomputer-controlled dispatcher systems. The absolute stability and continuity of extraction must always be given proper attention in all economic calculations of expenditure and benefit connected with the equipment in use. Here again the overall effect within the national economy--a steady flow of supply with fuels--in the final analysis is the sole criterion.

There is an entire series of additional questions calling for effective resolution in connection with the complex mechanization and extensive automation of strip mines. This concerns, for example, the control of raw coal

extraction and distribution in keeping with quality requirements through automatic recording of the ash content of raw brown coal; the expansion of technical diagnosis as it is needed in shaping the maintenance processes and strategies; the introduction of energy-saving technologies, especially during the operation of conveyer systems, in connection with drainage measures, and in transportation operation through the use of microcomputer-controlled electrical locomotives.

In keeping with these criteria, work is now being started at the Espenhain strip mine with the goal of quickly raising labor productivity by about 20 percent and cutting costs by 15 percent.

Past experience clearly shows that the development of modern, efficient strip mines with good effectiveness coefficients also creates new quality requirements for the geological exploration of brown coal. We are geared toward that. In the overall estimate of brown coal resources on the territory of the GDR, we have the necessary research results enabling us to design the development of the brown coal industry for the next several decades. We know where, under what geological conditions, from what depths, and with what quality brown coal can be mined far beyond the year 2000.

But the physical parameters of the overburden and the seam floor must in the future be determined even more accurately and more objectively for the sake of the effective and safe operation of strip mines coupled with the employment of the most modern strip mining equipment and technology.

As regards the effectiveness of the brown coal procurement process in terms of the national economy, it is also particularly important to determine all constituents of brown coal, which are significant concerning energy use, material-management utilization, or as harmful substances, early during the exploration process in order to be able to make timely decisions for their use or accumulation in mine dumps. Underground water deposits in future brown coal regions must be described qualitatively and quantitatively in a more timely fashion and in a more comprehensive manner in order to organize the evacuation of water from the strip mines in close conjunction with the utilization of mine waters as drinking and utility water.

These new requirements for prospecting and exploratory work make it necessary in the field of geology likewise to implement computer-based data processing and processing in an even more comprehensive fashion. Only the tie-in of geological deposit models which give us more and more information with the help of modern data processing, the utilization of the data obtained at the computer-supported geologist work station, as well as the storage of exploratory data in the central brown coal data storage unit will further reduce the exploration expenditure and the exploration times and will facilitate rapid, operational access to all required data for geological interpretation, for strip-mine planning, and for the management of actual mining operations.

On the whole, in the light of all past experience, it is advisable to orient the entire exploration-methodology and technical-technological research effort in an even more complex fashion both toward the increase in prospecting and exploration effectiveness and toward the securing of a more effective brown

coal extraction and refining effort which will be in keeping with the targets of the national economy as a whole.

The transportation and storage of brown coal will be of fundamental significance to the brown coal supply in terms of the national economy. It is important further to optimize the train round-trips and to organize them according to strict economic criteria with the help of electronic data processing. To guarantee smooth shipment also during longer periods of frost, it is necessary to look for suitable new ways of car cleaning, as well as methods for preventing caking and freezing of coal.

The continuing supply of the national economy with brown coal products also necessitates the further development of storage management. On the basis of the new conditions, the Political Bureau of the Central Committee and the government have already confirmed new standards for this. They require a complex effort to process questions of increased exposure of raw brown coal in the strip mines, the creation of buffer strip mines, the erection of larger storage areas at the consumer's or the producer's end, as well as questions of the economy of coal transportation.

The use of accompanying materials from brown coal deposit facilities is assuming ever greater significance in the national economy. In 1984, 33.8 million tons of important mineral raw materials were obtained from the overburden. Procuring these accompanying raw materials is in keeping with the basic principle of our economic strategy to use all raw materials available throughout the land--also those from small and very small deposits--as effectively as possible. This naturally at the same time gives us new sources for increasing effectiveness in the mining enterprises of the brown coal industry.

How Further to Improve the Refinement of Raw Brown Coal?

As in the case of raw brown coal mining, the party's resolutions also spelled out new criteria for refining brown coal into high-grade energy sources and chemical raw materials. In this field likewise we can already point to international top-level results, for example, the production of coke and gas from brown coal as well as its use in coal chemistry. The refining of raw brown coal is being continued in a goal-oriented fashion on the basis of these achievements. In this way, the same quantity or even a smaller quantity of coal enables us to achieve a higher value increase since the coal is being processed into products with a higher utility value due to the use of the country's material and intellectual potential and in this way we can make a decisive contribution to raising the country's national income.

In briquette and fuel dust production, the important thing above all is so to rebuild and modernize the briquette factories during the next several years that they will retain and further increase their full output capacity beyond the year 2000. This means above all that we must develop our systems for more effective comminution, classification, and coal drying, that we must take further steps toward improving the quality of the briquettes and the fuel dust, and that we must finally considerably improve the surveillance and organization of the reproduction process so as to enhance safety in the briquette factories.

We can see with increasing clarity that the use of steam fluidized bed drying will facilitate decisive technological changes with good economic effects also in the briquette factories.

As for the production of brown coal coke, our work is being aimed increasingly effectively at developing and producing coke grades which facilitate use in the construction materials industry, in the smelter industry, and in carbide production. That is where it has been possible to achieve high utilization rates due to the fractionation of the coke; new technological solutions, which have already been provided, enable us to look forward to even better results, above all through dust briquetting and a coking process geared toward that.

The production of gas on a brown coal base is being expanded further in a goal-oriented manner. Through the intensification of brown coal pressure gasification, above all through the use of microelectronics, it is now important to create the conditions for further increasing city gas production and at the same time further raising the energy efficiency also in connection with the use of raw coal having higher ash contents. The successful testing of dust pressure gasification in a large-scale industrial experimental plant enabled the GDR to develop a highly productive technology with the prerequisites of above all covering the chemical industry's rising requirements of synthesis gas.

The procurement and use of tars, oils, and other liquid products from brown coal refining is likewise being intensified further. At this time, we are already obtaining about 1 million tons of liquid products which are being processed into fuels, paraffins, electrode coke, benzene, phenol, pyridine, and other important chemical raw materials.

Low-temperature carbonization is today the core of liquid product procurement from brown coal. The plants available for this are being rebuilt and modernized to guarantee an output increase. Scientific-technological work is above all aimed at switching to fluidized-bed carbonization in order thus to increase the yield of liquid products and to expand the base of brown coal suitable for low-temperature carbonization. Efforts are also being concentrated on the direct liquefaction of brown coal into fuels.

Important prerequisites for the expansion of the raw material base of the GDR's chemical industry will be created in the future also through intensive work aimed at improved brown coal refining.

Brown coal achieves a high refining level in electric energy generation. Brown coal is the foundation of the GDR's electric energy base. Intensive scientific-technological work is being devoted to the expansion of this foundation. The important thing primarily is even more decisively to reduce conversion losses by means of complex intensification and at the same time further to reduce environmental pollution resulting from the burning of brown coal. This is why much attention must continue to be devoted to the optimization of the burning processes. But we can recognize even now that the introduction of fluidized-bed combustion will give us even more favorable process-engineering conditions for the use of ballast-rich raw brown coal. An important reserve for the improvement of the conversion factor in power plants is increased heat neutralization above all for the purpose of supplying heat to cities and

enterprises. More attention must be devoted to this topic for the sake of efficient energy use.

All of these processes involved in brown coal refining and their ever more effective utilization in heat processes are also very important to the protection and preservation of the environment. To the extent that the coal constituents are most extensively procured during the refining processes, they will not contaminate the environment.

The party leadership and the government have spelled out measures aimed at obtaining sulfur and other products from the sulfur-dioxide-containing flue gases and refining them to a higher standard in industry.

Best Possible Utilization of Other Energy Raw Materials

Domestic natural gas extraction holds a firm place in the GDR's energy industry. The situation as regards reserves and the geological conditions of course in this field likewise necessitate more scientific-technological work. In order to procure the proven reserves, including valuable accompanying components, with little loss, great importance is attached to techniques and technologies with whose help the storage units can be activated and by means of which reserves, which until now had not been extractable, can be included in mining operations.

The timely detection of new natural gas deposits under increasingly complicated natural conditions--smaller deposits, considerably greater depth ranges, complicated deposit structures--call for raising the level of earth-science work. A reliable prognosis of deposits must be achieved in geological interpretation through the development of new methods and improved models. Computer-based geologist work stations here again will increase the efficiency and effectiveness of work.

The intensive utilization of the raw material potential, which characterizes the country's economic strategy, naturally also covers all imported energy raw materials.

Petroleum is very important in the country's energy and raw materials industry. The organic chemical industry of the GDR, fuel supply, and important technological processes in many areas of the national economy are to a great extent based on petroleum processing products. Reliable shipments from the Soviet Union constitute a guarantee for their steady production.

The development of petroleum prices on the international markets has established new criteria for the use of petroleum. While its employment for heat generation thus became ineffective and expensive when compared to brown coal, petroleum products as chemical raw materials and fuels have great economic significance which keeps growing as the degree of refining increases. It is therefore all the more necessary to work out additional solutions for the use of petroleum in order to make fuels and chemical raw materials with a specific petroleum expenditure that will be very low when compared to international figures. The GDR tackled especially this requirement at the right time. We work consistently in an effort to use fuel oil no longer in heating processes

but, to employ it even more effectively for engine fuel and chemical raw material production through even greater cracking. All measures were taken in an effort to process fuel oil in such a manner that the entire petroleum substance can be refined approximately completely into chemical raw materials and fuels. That is the basic direction of petroleum processing until 1990. Petroleum is being replaced completely as energy source for heating processes and is being refined much more.

Imported natural gas from the Soviet Union is very important to the GDR national economy. To be able to continue to procure this energy raw material in long-range terms, the GDR is participating with its own capacities in opening up the natural gas resources in the Soviet Union.

Like petroleum, imported natural gas reaches its highest effect in the national economy through utilization as a substance. At this time, ammonia, methanol, and urea are already being made from about one-third of the imported natural gas via synthesis gas. Imported natural gas undergoes a high degree of refining due to the processing of these chemical raw materials. We will continue along this route.

As for hard coal and hard coal products, which the country must import, our work is aimed at organizing the most economical possible utilization of these substances in the national economy through the use of the latest scientific discoveries.

Creative Work Decisive

The new requirements for the procurement and refining of energy raw materials in our national economy constitute a great challenge to the intensive and creative work of mining industry and energy industry workers, of scientists, engineers, and economists in the combines, colleges, and scientific institutions, as well as all workers in the cooperation enterprises. All past experience confirms that, in the final analysis, the qualification and responsible work of the employees as well as the level of management activity will decide the degree of economic effectiveness and the tempo with which we solve all of these new problems. "Man with his skills is the chief production force," Erich Honecker emphasized at the Tenth Conference of the Central Committee, "and we must act accordingly."[2]

Starting with the high education levels of the workers in the coal and energy industry--more than 85 percent are qualified as skilled workers, foremen, or have graduated from technical school or college--efforts in the combines are now aimed at increasingly preparing the workers for the future technologies, for the comprehensive utilization of microelectronics and computer technology. The party leadership bodies are concentrating their political-ideological work on increasing the readiness of the workers to achieve new skills, to take over new work areas, and to bear higher responsibility. Special attention is being devoted to the assignment of capable young cadres who have a particularly open mind toward these new techniques and technologies.

The combines in the coal and energy industry, which have gone through a successful turn toward intensification, are now asked, in keeping with the

resolutions of the Tenth Conference, completely to gear their management, planning, and internal organization toward the new requirements of comprehensive intensification.

Starting with the new scientific-technological targets, even greater efforts must be made to attain a qualitatively higher level of research and development, design and planning in the combines of the energy industry. Here it is important to expand both the qualitative and the quantitative prerequisites. This includes the expansion or buildup of specific in-house capacities for the application of microelectronics and the introduction of computer-supported research and development, design and production control. Such capacities are indispensable because, in the light of past experience, rapid progress in this field is possible only if each combine creates the in-house requirements that are necessary for the adaptation of the software. Besides, comprehensive work as a rule is also necessary to develop a uniform and well-organized enterprise management system.

Capacities for in-house rationalization equipment construction will be expanded briskly in a close reciprocal relationship with measures aimed at upgrading research and development. This will considerably contribute to increasing the in-house share involved in the implementation of new technologies for mechanization and automation, the employment of robot equipment, and the use of microelectronics as well as to perfect the level of production control.

The coming tasks require us even further to improve the economic cooperation of industry and the colleges as well as scientific-technological institutions, which have reached a high level even today. It is above all important to do even more effective teamwork on the basis of performance contracts that can be evaluated and billed properly.

The workers in the coal and energy industry now are bringing their full force to bear on the preparations for the 11th Congress of the SED. They are making tremendous efforts in order to achieve initial results by then for the implementation of the key technologies and to attain a high performance growth level on this basis. Through this commitment of accomplishing the assigned plan tasks on an all-around basis and exceeding the targets in a goal-oriented fashion, through the persistent struggle which they are conducting in the context of socialist competition, they are making an important contribution to the strengthening of socialism and the preservation of peace.

FOOTNOTES

1. "On Preparations for the 11th Party Congress of the SED," from the speech by Comrade Erich Honecker, Tenth Conference of the SED Central Committee, Dietz Publishers, Berlin 1985, p 24.

2. Ibid., p 35.

5058
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HUNGARY

## SOLUTION TO UNSATISFACTORY SUPPLY INDUSTRY SOUGHT

Budapest FIGYELO in Hungarian No 30, 25 Jul 85 p 5

[FIGYELO panel discussion: "The 'Independent' Supply Industry"]

[Text] The present situation of parts and subassembly manufacture (the supply industry) and trade is holding back the development of industry to a large extent. A number of government decisions have been made in recent years to solve the problems. Most recently, in March 1985, the Economic Committee reviewed the results thus far in the development of the supply industry and outlined the most important tasks in this regard for the Seventh 5-Year Plan. Our editors organized a panel discussion of the achievements and problems in supply industry development. The participants were: Dr Jozsef Balint, economic director of the BHG Communication Engineering Enterprise; Andras Gabor, deputy minister in the Ministry of Industry; Istvan Foldesi, vice president of the Communication Engineering Cooperative; Matyas Jakab, director general of the Machine Tool Industry Works; Dr Zoltan Marton, economic director of Videoton; Jozsef Palosi, technical director of the Tungsram Company; Laszlo Sallai, a main department chief in the secretariat of the Council of Ministers; Istvan Veisse, technical director of the Lang Machine Factory; and Dr Jozsef Virag, director general of the Ganz Electric Works. Our journal was represented by Ivan Wiesel.

[FIGYELO] The manufacture and sale of parts and subassemblies abroad is an inseparable part of commodity production and suffers no special disadvantage nor enjoys any special advantage in comparison to final product manufacture in the classical sense. What explains the fact that here the "supply industry" has become such a separate category?

[A. G.] The reason for this first of all is that in the past decade industrial development didnot pay sufficient attention to parts and subassembly manufacture and the development of it lagged significantly behind that of final products. Even during the Sixth 5-Year Plan the government took a number of measures which served to restore the balance. By the end of 1984 industry hadproducedworth 10 billion forints more products of a supply industry character than planned--at 1981 prices. It is a significant achievement that the convertible accounting import of these products in industry decreased by one billion forints, the ratio of import from socialist countries increased and import replacement broadened.

I am convinced, however, that this problem cannot be solved with government programs alone. The real solution must be sought in two directions--in a further broadening of CEMA integration, which would promote the specialized manufacture of standardized parts, tools and subassemblies, and making it advantageous for the enterprises to manufacture such articles, agreeing to produce broader varieties and better qualities of these items. This will require a proper transformation of the price and interest interrelationships.

[L. S.] It is a favorable factor that the manufacture of supply industry products is being undertaken by industrial and consumer cooperatives, the large agricultural operations, the artisans and more recently by various small undertakings, primarily the enterprise economic work associations--in addition to state industry. Their accomplishments can be put at 15-18 percent of all supply industry production. We really have achieved results in the production of and trade in supply industry products, but unfortunately there has hardly been any progress yet in making use of the unused machine capacity existing in these areas. The 1985 thinking of the Economic Committee assigns an important role to the idea that greater attention must be paid to exploiting the already existing modern supply industry capacity and increasing the ratio of specialized manufacture, by strengthening economic organization tasks. In trade we must increase the role of TEK [capital equipment marketing] and technical trade enterprises and the role of associations which coordinate production, needs and capacity. Introducing methods which spare central sources of money is an important task. Joint undertakings or associations might do this, for example.

[J. V.] The conditions for supplying the Ganz Electric Works with cast, forged and special rolled goods are unfavorable and are getting worse. Nor is the situation any better in regard to tool and instrument acquisitions. Frequently, because of the problems with supply, we put transformer and dynamo sheet, conducting material and often even forged steel, castings, transformer bushings and ceramics on the import list. It is a first priority interest that domestic enterprises perform large series manufacture of the supply industry products of key importance and that they try to achieve the up-to-date quality which will make an efficient linkage into the international division of labor possible in this area as well. The thought of setting up for autarky, however, is far from me. The comparative advantages and disadvantages must be weighed in the domestic development of the supply industry too.

It is already boring to talk scandal about cooperation activity, but unfortunately we have hardly made any progress in this area. Indeed, with the reduction in industrial personnel this problem is becoming ever more serious. The uncertainty of cooperation discipline and the variable quality of the products delivered put the enterprises producing the final products in a helpless position. Their efforts to protect themselves--for example, manufacturing the needed products themselves--cannot be effective enough. It might help ease the problems if the sections and shops producing such articles at the enterprises producing the final products were transformed into independent special enterprises, or if new enterprises were created.

[Z. M.] Some of the problems derive from the fact that today the enterprises conducting supply industry activity do not depend on the producers of the

final products; indeed, the dependence goes the other way. This produces conflicts of interest and disturbances in the cooperation chain. A producer of final products gets into a very difficult situation when he cannot meet the obligations of an export contract in time because of late deliveries from suppliers; and the conduct of an irrational stockpiling policy offers no protection against this either.

[L. V.] We have socialist export obligations where we are 2 years behind, because so far metallurgy has delivered scrap castings 13 times and we have had to work more than 10 forged steel pieces in order to be able to use one in the manufacture of an impulse wheel. Need I comment on that? The cost and material aspect of this is mind-boggling. One can find some improvement in the work of metallurgy, a desire to improve can be felt in their intentions, but this is not enough; as long as there is not a radical change the supply industry problem will remain unsolved.

[J. B.] I feel that the enterprises involved in supply industry activity do not have enough capital strength, they get deeper and deeper in debt, and although their prices in general are higher than the capitalist import price their interest in developing and improving the quality of their products is weak. This also applies to the manufacture of electronic parts. Unfortunately the quality of the parts can be objected to and this represents a high degree of technical risk to the manufacturer of the final product.

[M. J.] That is true. For example, the documented parameters of electronic subassemblies of Bulgarian manufacture are acceptable, but the quality of the products delivered sometimes leaves much to be desired. This means extra expense for us which is increasingly intolerable. And the chairman of the federation of Japanese tool manufacturers was justly amazed that we were able to produce modern products. But at such a price!

[I. F.] Our cooperative makes up with self-supply for the lack of supply industry services. We know that the practice of "producing everything ourselves" contradicts the requirements of rational management, but today this is the pledge of security. And security is a first priority economic interest. It is virtually impossible to obtain interchangeable mechanical parts, and today we are already attempting to produce printed circuits ourselves too because about half of the circuits delivered by outside manufacturers are unusable, and so they are more expensive and less reliable than our own manufacture, at a lower technological level. This is madness! The source of the problem is that supply industry manufacture does not pay, and raising the prices is not a path which can be followed. This is a vicious circle.

[I. P.] I think that one source of the problems which can be found in supply industry activity should be sought in the organization. In capitalist countries, where the productive part, subassembly or module is a part of market trade just like any other finished product, subcontracting cooperation has developed between the enterprises manufacturing such products and the manufacturers of the final products. Unfortunately this has atrophied here more and more.

[FIGYELO] In some countries the manufacturers of the final products make capital and technology available to the subcontractors; it is true that they also prescribe the quality requirements and often even the price. We also should rethink the system of contacts between subcontractors and the manufacturers of the final products, and we should radically change the methods used thus far. But supply industry activity cannot be handled as a separate, major branch. It is a part of commodity production and the place it occupies in the division of labor should fundamentally determine its development.

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HUNGARY

## QUALITY OF METALLURGICAL PARTS FAULTED

Budapest FIGYELO in Hungarian No 30, 25 Jul 85 p 5

[Article by Maria Demcsak: "That's Not The Way To Go!"]

[Text] Users complain about the quality of domestic metallurgical products, but not only that. They also suffer many losses because delivery time limits are not adhered to. In addition, it would require courage for some user to ask for something special, whether a specially worked casting or thinner steel sheet. The size problems appear at the time of delivery, but the internal faults of steel castings, the "slabs," due to the material structure, appear only in the course of working, in various phases of processing.

In general a worked casting is needed at the beginning of the manufacture of a piece of equipment. The situation is better if a suitable warehouse supply is available, because work can still be done until they get a perfect part suitable for building in. It is true that this slows the pace of manufacture a little, but they don't have to stop. It is worse if a material fault is discovered only when the equipment is in operation, because that could cause damage measured in hundreds of millions--for example in the case of a turbogenerator.

A demand for steel sheet of various thicknesses and size precision cannot be called out of line. It is also natural if the user asks for this sheet in ultrasonic quality. If he does not give up his intention despite the effort of the manufacturer to talk him out of it then the manufacturer agrees to produce the outstanding quality, but it can easily happen that the delivery is delayed. The conditions for shipping and stockpiling, for example, are not favorable for the scratch free surface of stainless steel sheet.

The situation is no better in the case of aluminum castings. Not infrequently the Ganz Electric Works must manufacture 8 or 10 ventilator rotors to get 1 final product, because the aluminum casting is rejected.

The enterprises should send back the faulty goods and make a claim--the solution is given automatically. Yeah, sure, but production cannot stop during the long time of torment. And what happens if the manufacturing firm takes offense and, citing short capacity, makes no more deliveries or reduces the quantity? The import possibilities, as we know, are very limited.

The truth is that as a whole only a small percentage of the metallurgical products are rejects. Claims are made for 2 percent of the rolled goods, 3 percent of the sheet and 6-10 percent of the castings or forged products. But the damage resulting from this--as we have pointed out--is a good bit greater. The Lang Machine Factory had a loss of around 15-20 million forints because of this in 1984.

In general there are inordinate numbers of complaints about quality and time limits considering the level of the producing equipment. It can be said that in the case of some products a high technological level can be found at a few metallurgical enterprises. For example, the conditions for high quality steel manufacture do exist at the Lenin Metallurgical Works. The Ozd Metallurgical Works makes international quality concrete re-enforcing steel and cylinder wire. The modern foundry in Oroshaz can satisfy the needs within weight and size limits. So why do the needs and possibilities not approach one another?

The most obvious causes from the side of the manufacturers are non-utilization of machines and equipment, organizational errors and the reduced staff of skilled workers. As a result of all this the technological discipline is lax. Another cause is that the equipment is obsolete and unsuitable for satisfying the needs of more demanding customers. This problem appears generally in the case of castings, forged goods and alloyed products. But development requires extraordinary assets, and knowing the serious financial problems of metallurgy one cannot count on radical changes. As a third cause, and one most worthy of further thought, one should mention the oppositions in the Ministry of Industry between manufacturers and users, the lack of cooperation and recognition of common interests. A few supplementary investments needed to increase the quality level and make up for the technical backwardness could be made jointly. It is only necessary to recognize the common advantages deriving from this. A small but instructive example: The Lang Machine Factory bought a casing lathe and made it available to the metallurgical enterprise just so that it could be used to make turbine housings for it.

Good possibilities are offered in the form of mixed enterprises established with foreign partners, in cooperation, in undertaking relief jobs and in leasing. Unfortunately we rarely meet with these at the managing organizations affected.

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HUNGARY

## TENSIONS IN SUPPLY OF ELECTRONIC PARTS PERSIST

Budapest FIGYELO in Hungarian No 30, 25 Jul 85 p 5, 6

[Article by G. T.: "Elektromodul--Reducing Tension"]

[Text] We are in the fifth year of the central development program for electronics. Despite the tangible and not to be underestimated achievements of domestic microelectronic parts manufacture, started with such difficulty, the tensions in the supply of electronic parts have not decreased and the equipment manufacturers continue to complain about the small assortment, the bad quality, the long delivery times and the high prices.

The industrial enterprises get more than 80 percent of their electronic parts needs from the Elektromodul Parts Trading Enterprise. Istvan Lepek, commercial director, evaluates the situation this way:

"As I see it the supply now is somewhat better than, let us say, 6 months ago. It is a fact that Hungarian electronic parts manufacture cannot satisfy the needs in either volume or variety. Resolving the tensions deriving from this is the task of Elektromodul. Ending the assortment shortage means acquiring from abroad what does not appear in the manufacturing plans of the Hungarian enterprises. The volume shortage is a more complicated phenomenon, on the one hand because the parameters of the parts brought in to supplement domestic manufacture do not always coincide with what is customary and on the other hand, if some domestic manufacturer suddenly ends manufacture of a certain part--for example because it is uneconomical or due to a shortage of imported materials--then the confusion begins and the emergency solution is usually capitalist import. The Hungarian manufacturers have no supply responsibility; no one can be forced to manufacture something.

"At present Hungarian industry uses about 10 billion forints' worth of electronic parts in a year. The import ratio in EMO [Elektromodul] trade is around 60 percent, more than half of this convertible purchases, of course there is great variation by product group. We are well acquainted with the type assortment of the socialist partners; we are not so well acquainted with their manufacturing capacities. We have to place our orders well in advance; for example, this spring we signed with the GDR for deliveries up to December 1986, precisely specifying not only volume but types as well. Acquisition from the socialist countries of anything we have not ordered now is very uncertain. "Nor can we buy everything on the capitalist market, because of the shortage of foreign exchange and the well known export restrictions. World market trends strongly influence delivery time limits; a year and a half ago we were able to contract for deliveries only in a year, now the situation is turning

around, many new microelectronic investments have begun production, primarily in the United States and Japan, supply has increased, and we can plan deliveries in 2-6 months. The question rather is when we can send the order, depending on the foreign exchange situation."

In the first half of this year the trade of Elektromodul grew by about 30 percent and the increase in capitalist import within this is similar. They say that they are supplying everyone with parts, at least later. The waiting time is increasing. Last year 95,000 order sheets "ran through the apparatus." If they were ordering only one 8 forint part on a sheet it cost EMO about 100 forints. Even if the part ordered is in the warehouse it takes 2-4 weeks for the order to go through. Direct service from the warehouse is rare. Often they ask for a justification for the orders and determine the delivery sequence on the basis of the importance of the products being made. The staff of experts in the technical department of the commercial enterprise tries to talk the user into a socialist or domestic part instead of the capitalist parts, and will give advice on the spot in the interest of this. But the average domestic price level of domestic electronic parts is twice that for those obtainable from capitalist partners, and Soviet parts are even more expensive....

For the time being a proposal is being prepared for changes, the purpose of which will be to make trade more flexible and to improve supply.

"We are trying to develop prices which would approach the world market price level," the commercial director said. "This problem may be solved by the end of the next 5-year plan cycle with the support of parts manufacturers, price discussions, technological changes and the duty prescription modifications.

"We are preparing to set up a trading company which is expected to start operations at the beginning of next year. The expanded foreign trade rights and increasing the working fund means new sources for trade in electronic parts. We would like freer foreign exchange management so that our capitalist orders were not so split up. We are trying to strengthen the function of promoting production by buying machines, leasing, handing over financial funds and bringing in small organizations. We are still making little use of the so-called set service, when we deliver all the parts needed for some piece of equipment at once. In addition to the Ujpalota warehouse there will be a newer large warehouse in Kobanya; with this we will be able to expand direct service from stock, from the warehouse. There is already a consignment warehouse for the Siemens firm and for Soviet parts; we are talking with a Japanese firm about establishing something similar. It would be good to revive again the warehouses which used to placed out with the users.

"According to surveys there are 1.5-2 billion forints' worth of parts 'settled' with the users. We are asking for preferential credit to get these stockpiles moving; the action is expected to start in January.

"And finally, one more thing. Private citizens and small entrepreneurs are asking for more and more parts. We already have three specialty shops in Budapest for purchases of a few items, and we have begun development of a national commission small shop network which not only will improve supply but also will relieve the burden on the central commercial apparatus.

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## MULTIDISCIPLINARY TRAINING OF ECONOMISTS PROPOSED

Budapest FIGYELO in Hungarian No 38, 19 Sep 85 p 5

[Csaba Vertes' Interview with Dr Csaba Csaki, president of the Marx Karoly University of Economics: "One Diploma--From Several Universities"]

[Text] The academic year started somewhat later than usual at the Marx Karoly University of Economics. The institution's faculty members spent the past week debating the long-range development plans of the University. On the occasion of the beginning of the academic year, we questioned the President, Dr Csaba Csaki, concerning the details of the still unfinished plans and working conditions at the university.

[Question] Since I am familiar with the views of the enterprise directors, which are not exactly uniform but tend to be less than complimentary, let me ask you: What do you think of the training of the economists?

[Answer] I have no quarrel with those who put theory into practice, the managers of the enterprises that employ our graduates. I propose that, in the final analysis, the University produces basically well-trained economists. I propose this on the basis of international comparisons, as well as observations of the careers of our former students.

[Question] How is it possible to make international comparisons in this field?

[Answer] Here is, for example, the World Federation of Student Economists that performs an extraordinarily useful activity. During the past few years, it has made it possible for 60 of our students to gain practical experience abroad, and its deputy secretary is from our school. But I could also mention the way our young economists hold their own at various international gatherings...

[Question] ...But that is not typical. Obviously, there is a small elite group, and there is the relatively heterogeneous majority, who are, not accidentally, utilized in an appropriate manner.

[Answer] When it comes to the quality of utilization, I have a different opinion. It is not a general phenomenon that enterprises use young economists as common administrators or some kind of intellectual day-laborers. There are some good examples in this area and, of course, some terrifying ones. Obviously, the poorly trained and less ambitious economists cannot expect

to receive important assignments, even at the enterprises that are more open to their specialty. Such openness usually also implies a high degree of professional demands as well. But, before you accuse me of defending the prestige of the University, let me add this: We have not decided on the development of the instructional system, and the entire long-range development program, because we are overly satisfied with instructional work. After the implementation of two significant reforms, the instructional system has remained unchanged for a decade and a half. And, even if we only consider the external circumstances, the changes in economic life, we must realize that the time is ripe for new reforms that are more comprehensive than the previous ones and include the entire strategy and structure of education.

[Question] Being that the network of colleges is relatively extensive, and I could also mention secondary education here, to what extent can universities aim to educate an elite? After all--and here again I refer to certain characteristics of employment--the practical value of graduation from a college and that of a university diploma are becoming increasingly identical. What is more, during the early part of one's career, a college degree appears to indicate a more practically usable knowledge and disposition.

[Answer] On the other hand, in the long run the university diploma, and the knowledge behind it, will, of necessity, become more valuable. Of course, not in every case. As for the issue of elite and mass education, it is not fortunate to contrast the two. I say this, in spite of the fact that our development plans reveal our striving toward elite education; but this is only a superficial appearance. What we would like to create is a two-tiered, so-called modular instructional structure. After two years the student can decide, that is, based upon a special system of criteria, we can decide, whether he wants to leave with a college diploma or continue his studies for a degree that would make him a licensed economist. The college type education would become a secondary profile of the institution; it would provide opportunities for adjusting one's career painlessly, and at the same time it would allow college graduates to continue for their university degree.

[Question] Would the gates of the university be closed forever to those who are stuck in the colleges?

[Answer] Absolutely not. If they meet specific conditions, they can study at night or through correspondence courses, and, after a certain period of time, the doors of the university would be open to them also. Furthermore, we would like to create possibilities for multidisciplinary training, even within the framework of gradual education.

[Question] In other words, you would broaden and "bring into the daylight" the training of engineer-economists?

[Answer] And also that of physician-economists, lawyer-economists, and economist-teachers, which, by the way, is already present in our immediate plans. In addition, we propose the organization of economist-production engineer training for those who have completed the first, college level of the polytechnic institutes or those who have graduated from colleges of economics.

[Question] Would the medical schools or the polytechnic institutes cooperate with you in this effort?

[Answer] Why not? Our preliminary discussions already indicate that our conceptions were correct.

[Question] What is most promising in all this is that the relationship between instruction within the not entirely logically designed college network and that at the universities would finally be regulated. At the same time, competition between the two types of schools, which at the present time seems to stimulate you and your colleagues, would not cease.

[Answer] Let me correct a few details here. We are stimulated to initiate reforms not so much by the competition, but rather by our desire to use our own potentials, resources and methods and to contribute to the development of post-secondary economic training that would be better integrated and would offer more choices for the individual student. Within our own area of competence, we would like to eliminate dead-end roads that are characteristic of the entire educational system. In brief, we promote the possibility for students to continue their studies at universities immediately after finishing their college courses, or the means by which one can begin studies at the polytechnic institute and, after completing a certain segment of course, transfer to the university of economics and receive his degree there. As of now, this can only be accomplished within the second-diploma earning system, surrounded by many complications and wasting a great amount of time and energy. Of course, in order to bring our plans to realization, the structure of our own training and curriculum must be radically altered. The presently prevailing practice is this: During the first two years we load down our students fresh out of high school with theoretical courses, and later, when they would be most receptive to theories, we gradually switch to practice as a basis of our instruction. Efficient instruction would require an inductive-conductive curriculum structure, based upon which theory and practice, the general and specific topics, would be taught gradually, with increasing depth, and in a simultaneous manner. The above-mentioned modular, bi-level university training of economists can only be realized in this framework.

[Question] Would this also mean that during the first part of instruction there would not be any formal specialization?

[Answer] Precisely. During the initial instructional module, emphasis would be on basic topics considered necessary for every student. To supplement this, the students would face certain choices even during the initial part of their training. They would be free to decide, for example, whether they are satisfied with the amount of instruction offered by the required courses in theoretical economics, mathematics, or computer science, to enroll in the so-called advanced classes, or to select topics of increased practical applicability. On the other hand, the study of certain advanced topics is the precondition for admission to the second level of instruction, leading to a university degree. Within the second stage, we visualize four main modules: general economic topics, a management sequence similar to that

offered by business schools, a sequence of training teachers of economics, and the study of international economic-political relations.

[Question] As far as the business-school type of education goes, I understand that there have already been some reservations voiced by other institutions.

[Answer] We have no wish to compete with the already existing schools of leadership. How could we, since they are mainly concerned with the continuing education of economic cadre? At the same time, the degree of neglect prevailing in this area is difficult to imagine.

[Question] I have another remark: In its present application, the fourth module you mentioned just now has definite earmarks of elite-training. Those who complete these types of courses usually enter the diplomatic service or, after relatively brief domestic practice, they become foreign correspondents, etc. Can an economic university take on the responsibility for this type of training?...

[Answer] Someone has to do it, and since there is no special school for this type of instruction, we shall continue to provide it...

[Question] ...And immediately I reverse the question: Using the fourth module as a model, have you considered initiating the kind of elite-training that would provide the future leaders for national administration and the various establishments? I am thinking of the French pactice, existing at such institutions as the world-famous ENA, the Ecole National d'Administration.

[Answer] I am afraid that we cannot establish a school within our university, but in the course of developing the reforms we are figuring on at least half of our economics students ending up in various positions of leadership. As for replacements for the present leadership, the business school module of the above-mentioned second level would serve this purpose.

[Question] As I see it, the realization of your concepts, in addition to other relevant factors, also depends on what type of students will enroll at the University? How popular, after all, is the University?

[Answer] For years now, we have had two to two-and-a-half times as many applicants as we can accept. As for quality, this year we declared 96 points as the minimum requirement for acceptance. As is commonly known, the maximum number of points is 120.

[Question] Shouldn't the numbers be reduced somewhat? Aren't there too many economists?

[Answer] Looking at the demands of the enterprises--and even taking into consideration the anomalies of employment--it appears that there are too few economists. As for tightening entrance requirements, this would not be advisable, because in the uture--as I mentioned--we will have applicants from the colleges and from other universities as well.

[Question] When it comes to the reforms that have already been formulated but not yet worked out in detail, are the leaders and the faculty of the University unified?

[Answer] I am not convinced of that. As far as the intention to change and the basic principles involved, public opinion at the University is more or less unified. Understandably, there are differences of opinion when it comes to the extent of reforms, how should it affect the developed system of instruction, the structure of courses, etc. In other words, there will be many debates concerning the details, but we have time for that, because the finalized version is still years away. One thing is for sure: we will wait until the renovation of our building is completed.

[Question] We have come to the preconditions already. First, let us look at the objective material ones.

[Answer] The renovation of the University's buildings is progressing more or less on schedule, and we hope that it will be completed by 1987. With that, the basic physical requirements for teaching will be provided for. I would like to add that this cost over 1.5 billion forints, of which we have already spent 1 billion. In this respect, we are somewhat better off than other universities, but as far as the basic instruments of computer science and other instructional aids are concerned, we are in similar shape. Fortunately, the teaching of economics does not demand as many instruments and laboratories as does the teaching of sciences or engineering. At the moment, it appears that we can obtain the minimal requirements within the foreseeable future. The situation is nowhere near as promising when it comes to personnel. Our faculty members have to teach and educate, they must participate in the work of a scientific workshop and, at the same time, they must earn their everyday living. These are difficult and often conflicting tasks, primarily because of the stinginess of financial remuneration.

[Question] How much is the average salary of a department chairman at the University?

[Answer] Less than what a well-paid skilled worker earns. Together with all premiums, it is around 10,000 forints; anyone earning 11-12,000 is considered very highly paid. As a consequence, most of the faculty is compelled to take on outside work, which, in part, is a good thing, because while they work at other institutions and enterprises they become more familiar with everyday practice. On the other hand, it is bad, because they will have less time to devote to their students.

[Question] If faculty members have financial problems, it is not surprising that the limits of their activities are becoming narrower and narrower. An outsider can judge this by the fact that, aside from about a dozen exceptions, the employees of the University publish conspicuously few of their writings.

[Answer] They do not have enough time and energy for that; even though, considering their theoretical knowledge combined with their practical

experience, they could publish more than their colleagues elsewhere. An even larger problem is that their secondary income-supplementing activities leave them little time not only for their students, not only for scientific research and publication, but also for curriculum development, which is an organic part of a teacher's job. This could be crucial, because the realization of our reform-concepts relies in large part on whether or not we will be able to produce our own teaching aids, textbooks and notes. I can give you an example. Nowadays, the honorarium for producing university notes is barely higher than typing the same...

[Question] In that case the situation appears to be rather hopeless, unless you can count on people possessed by ideas.

[Answer] We would rather count on the practical reorganization of our internal resources, as well as--and I am not ashamed to admit this--on supporters, sponsors if you will, for whom it is not indifferent what kind of economist training will take place in the future. Being possessed? Let me say in connection with that, that our faculty members are ambitious, but it must be realized that basing the future on purely professional ambitions is hardly a practical solution.

[Question] Returning to the adopted course of reform: The basic conception fixes the schedule that will be in effect until the millenium. When will realization start, and how fast will it proceed?

[Answer] We are devoting the next two years to professional debates, various synchronozation steps, and the working out of details. Thus, the start will occur no earlier than 1987-88. Until that time, there are various areas offering themselves for experimentation: Within the above-mentioned interdisciplinary training, we could test the basic components of business-school type instruction. If we gain the support of political or educational authorities, we could try to enroll the college graduates in our day courses. One of our more immediate plans--and we are negotiating with the National Council of Trade Unions (SzOT) about this--involves the setting up of a labor management department in one of the colleges. However, the comprehensive reform of basic education can only begin later.

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HUNGARY

## DEBATES ON INCOME FROM FARM AUXILIARY WORK CONTINUE

Budapest HETIVILAGGAZDASAG in Hungarian No 37, 14 Sep 85, pp 50-52

[Article by Peter Felix: "Tax Rate Question for Farm Auxiliaries"]

[Text] The gross production value of farm auxiliaries in 1984 was 110 billion forints. Although hardly anyone disputes any more the right to existence of the farm auxiliaries, debates regarding fluctuation in and regulation of production indicate that the organic adaptation of this characteristic activity form in the economy faces the managers with a difficult test.

Nowadays when debates are being waged over the short but turbulent past of small enterprises and their less than clear situation, among the arguments frequent allusions are made to the history of the farm auxiliaries. It is a fact that there are few phenomena in the Hungarian economy whose econo-political evaluation has gone through as many changes as the supplementary industrial and service activity of the agricultural producer cooperatives. We need to establish and support farm auxiliaries, it was stated at the May 1966 session of the MSZMP Central Committee, which took a position on behalf of expanding the nonagricultural activity of producer cooperatives and state farms in a resolution regarding the reform of the economic mechanism. With this a process was started which basically influenced the structure of Hungarian farming. Industries were established in areas unsuitable for agriculture, masses of rural people obtained year-around employment at their place of residence or nearby.

The supporters of farm auxiliaries have listed among their merits the fact that their role is irreplaceable in the elimination of items in short supply. It is true that from meat processing to lumbering and to virtually all branches of furniture manufacturing there are innumerable areas which are outside the field of vision of large state industries because of lack of capital and incentive, serial magnitude, export obligations and who knows how many other causes. In recent years factories have been established on farms at an increasing rate which manufacture consumer and industrial items in short supply and which require relatively little capital and untrained manpower, and only recently has the increasing number of small enterprises proviced them with competition. For example, the Petofi Agricultural Producer Cooperative of Dunavarsany manufacturers an enormous amount of small items ranging from beer bottle openers to cheese graters as well as rabbit-warren

blocks. Of course, this by no means signifies that only low-level industrial activity is being done in agriculture; it is well known, for example, that the New Life Producer Cooperative at Sarisap--which began with vehicle repair--today manufactures electronic spare parts.

The evaluation and regulation of farm auxiliary activity changed in 1972 when the reform of the economic mechanism came to a standstill. As a consequence --although the scale of activity continued to be diversified--the development rate of farm activity was moderated. In 1978 there was a new turn, and since then the increase in farm auxiliary activity may again be described as dynamic. In the first 4 years of the 1980's production value from nonagricultural activity grew by 90 percent, and today it amounts to almost 6 percent of total domestic industrial production.

The regulation of this activity and particularly its taxation, however, is still the source of sharp differences of view. But it is not only the views of the regulators and the regulated that differ but also those of the managing authorities, including industrial, agricultural and financial portfolios which are not always on a common denominator. There is justifiable suspicion that the difference of view derive not only from differences of interest but also from the fact that the farms ought to be given an interest in the expansion of industrial products in such a way that as the activity improves the revenue situation of producer cooperatives that are agriculturally poorly endowed, regulation should be "competition neutral" that is, it should not give an unjustified advantage either to the producer cooperatives or to the state industrial enterprises.

It may appear obvious that the economic conditions of industrial producers should be the same regardless of the sector to which they belong. In such a case, of course, those producers starting with poorer conditions would soon drop out of competition. This amounts to economic streamlining, but managers must also consider the fact that in such a case not only would items in short supply result but also many producer cooperatives would become practically inviable, not to speak of the many employment problems that would arise. In general, it is true that the ratio of supplementary activity is greater on the more poorly endowed farms than those that cultivate on good quality land. Statistics show that the ratio of auxiliary activity as compared to the basic activity is the greatest in Pest, Nograd and Komarom counties. Most of the farms in these areas sustain themselves or acquire profits by means of auxiliary activity.

Table. Development of Net Sales Revenue on Large Farms on the Basis of Balance Reports (in million forints)

| | (1) Állami gazdaságok | | (4) Termelőszövetkezetek | |
|---|---|---|---|---|
| | (2) alaptevékenységből | (3) alaptevékenységen kívüli tevékenységből | (2) alaptevékenységből | (3) alaptevékenységen kívüli tevékenységből |
| 1973 | 21 853 | 13 076 | 62 938 | 34 914 |
| 1974 | 24 047 | 12 484 | 72 923 | 37 368 |
| 1975 | 26 348 | 14 369 | 79 331 | 47 071 |
| 1976 | 28 439 | 18 192 | 82 848 | 36 764 |
| 1977 | 28 780 | 21 048 | 87 044 | 44 178 |
| 1978 | 33 193 | 25 425 | 101 821 | 73 443 |
| 1981 | 31 658 | 23 776 | 107 844 | 94 204 |
| 1982 | 35 164 | 38 227 | 116 894 | 112 956 |
| 1983 | 41 814 | 39 447 | 127 837 | 120 754 |
| 1984 | 43 213 | 44 033 | 132 766 | 127 739 |

KEY: (1) State farms
(2) From basic activity
(3) From supplementary activity
(4) Producer cooperatives

The establishment of competition neutrality succeeded too well, perhaps, for recently there has been an increasing number of producer cooperatives engaged in farm auxiliary activity which work under less favorable economic conditions than industrial enterprises with a similar profile. In the past 2 years a standstill has been evident in certain subbranches of industrial, construction industry, and service activities of large farms, and at the same time the revenue increase of the farm auxiliaries has derived mostly from price increases. According to the experts responsibility rests chiefly on the unrealistically high production tax in addition to the competition presented by small enterprises; that this may be true is shown by the fact that withdrawals were reduced in three areas in July. In this way the production tax on construction material industry activity was reduced from 11 to 7 percent, on construction industry implementation from 13 to 11 percent, and in wood-processing from 11 to 5 percent retroactive to 1 January.

Some say that regulation would actually be more just if the production tax did not have to be paid on the basis of the gross production value deriving from farm auxiliary activity but rather was established separately for each individual product. But one need hardly protest that in the case of several thousands of different kinds of goods this would be practically impossible to accomplish and would be contrary to the general requirement for the simplification of regulation.

The parties concerned also debate what constitutes industrial production and what does not. The question is not an abstract one, for the auxiliary branches must pay a tax on those that are industrially classified. According to the position taken by the Ministry of Finance the activity classification prepared by the KSH (Central Statistical Office) must be taken as the base. But this is disputed by the Ministry of Agriculture and Food Industry, which maintains that the KSH classification is defined according to international practice and leaves domestic conditions out of consideration. In this way the mining of peat for soil improvement and the manufacture of premixes and concentrates needed as fodder for livestock are to be classified as industrial and must pay the production tax. Agriculture manufactures these products for its own use and consumes them itself; industry does not deal at all either in their manufacture or sale. Then, producers ask, why should they be classified as industrial products. It is curiously characteristic of regulation that if tobacco is dried in the sun it is agricultural, but if it is dried mechanically then it is counted as an industrial activity, and as such was liable until last year to the production tax.

On the other hand, the Ministry of Finance believes that the number of auxiliary activities that are free of the production tax obligation is too large. At present it is not necessary to pay the production tax on construction material work for the population or vehicle repair jobs offered as a service to other operations, and thereby the auxiliaries dealing in this work

pay less tax than industrial enterprises performing the same work. Industrial representatives also question from the viewpoint of competition equality whether it is right for the farm auxiliaries of poorly endowed producer cooperatives to enjoy a subsidy of retaining production tax payment.

There is also a difference of opinion whether the MEM [Ministry of Agriculture and Food Industry] or the Ministry of Industry should exercise trade supervision over industrial production conducted in the framework of the producer cooperative auxiliaries. According to the Ministry of Industry this should be decided on the basis of activity that is performed. But the MEM believes that it is impossible to separate the management of the auxiliaries from the basic activity, for it is the large farm that makes available to the auxiliaries everything from power machinery to the infrastructure, not to mention the fact that the financial management of the main and auxiliary activities are for the most part inseparable.

It is difficult to give an answer to all the questions that are multiplying around the activity of the farm auxiliaries and even more difficult to give replies that are acceptable to everyone. But it is probably illusory even to attempt the latter.

On Many Legs, Flexibly

In 1984 the industrial subbranch of the Freedom Agricultural Cooperative at Gyal had a net sales revenue of 375 million forints in the industrial subbranch and 176 million forints in the construction industry subbranch. This is nearly double the amount earned by the basic activity. This cooperative, which is classified among the poorly endowed, "plays" on a very broad scale all the way from a locksmith's shop to a printing shop, to a beer bottling plant and to a plastic processing plant. We interviewed Tamas Nagy, the young, 35-year-old chairman of the cooperative about the situation and prospects of auxiliary activity.

[Question] To what extent is it worthwhile in 1985 for a producer cooperative to deviate from its main profile and engage in different kinds of undertakings?

[Answer] For us it is undoubtedly worthwhile. Last year our producer cooperative had a profit of 69.5 million forints, but in effect we achieved all this through work outside the basic activity. For us agriculture is to a small extent a deficit operation. Thus the auxiliaries significantly influence the income situation of our membership. Thus the auxiliaries significantly influence the income situation of our membership. Therefore we are sensitively affected by the fact that in the past 2 years our profits have declined drastically by about 40 million forints. It has also been impossible to fully counter with price rises the skyrocketing increase in wage costs and material and energy prices. We have tried to adjust to the changing times: this year we need 400 fewer workers than last year to make a similar profit. In the entire product structure of the cooperative we have been forced to make changes; for example, our basic activity was affected because we had to decide to cut back on the gardening subbranch to a small degree.

[Question] How have you developed the product structure of the auxiliaries?

[Answer] It has always been our goal to make such items in short supply which are needed in small volume, and thus our manufacture does not affect that of the large plants. Our plant for the manufacture of springs makes about 2,000 different kinds of small springs--for example, for fountain pens--and otherwise this demand would have to be met by way of import. But there is a similar situation in the case of carpet tacks manufactured in our metal-ware plant, and seal washers and bottom plates in the case of chemical-resistant tanks. We are also manufacturing steel chains for bottle conveyers, internal cogged bottom plates, and we could go on naming others. We have modernized many old machines, including some lathes and drilling machines which were made at the Manfred Weiss plant.

[Question] How much can the competition be felt on the market of products manufactured in the producer cooperative?

[Answer] We are forced to make increasingly greater efforts to remain in the boxing ring. With the increase in the number of small organizations we have encountered rivals who are more flexible than we are and who attract a considerable number of orders away from us. They give us competition also in the manpower market--chiefly for trained workers--for they are able to pay much higher wages than we can. We are now getting paid back--at least according to the charges frequently voiced by large plants--for what we committed against large plants previously. At present we have 70 to 80 fewer workers in the industrial branch than we need.

[Question] What kind of ideas do you have for the future?

[Answer] I have no notion of what the changes will be in next year's regulatory system. Sometimes it is impossible to defend against the effects of rapidly succeeding changes, and despite our best efforts our profits decline. In this way we have no possibility of working out a long-term concept. I have no confidence at all that the present regulation will remain in effect for the next 3 to 4 years. The farm auxiliaries should be given a bit of freer scope, because if it does not go well for them this will inevitably affect the level of agricultural activity.

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POLAND

## OBODOWSKI SPEAKS AT REGIONAL CONFERENCE

AU072044 Warsaw TRYBUNA LUDU in Polish 4 Oct pp 1, 2

[Report on speech by Deputy Premier Janusz Obodowski at a regional socioeconomic conference in Olsztyn 3 October]

[Text] J. Obodowski said that solutions to the problems raised during the course of the discussion would accelerate the region's development and contribute to an improvement in the standard living of the region's inhabitants. However, realism is essential in assessing whether it is possible to find a solution to these problems in the near future; it must be remembered that not all the consequences of the economic crisis at the beginning of the eighties have been overcome. Conditions for the implementation of the state's economic policy are still complicated. Among these complex conditions are an increase in investment commitments and a freeze on investment resources, the fast tempo of increases in people's incomes without an appropriate rise in the supply of goods and services, and the tempo of the rise in exports which is drifting away from plan assumption.

It might be possible to regain the consumptional levels of a few years ago or even to increase them, but this can only be achieved by increasing productivity, by raising the amount and quality of work, and by organizing collective effort intelligently and directing it effectively. Solutions to the most pressing problems have been called for. We must increase our own efforts if we want to find solutions to these matters, stressed J. Obodowski. Exceptionally sensible use needs to be made of what we already have. Demands for greater supplies of equipment to the building industry are just, but one can ask how things stand as far as the technical use of the cranes which we have is concerned, the use of lorries, and construction industry machines; how many of them are being used and how many are standing idle; how are working hours used on building sites; what is the employment structure like in the building industry and in socialized economic units economy; how is time used?

It must be remembered, said the deputy premier, that the fundamental slogan of the reforms, which we are implementing in both the economy and the system of local administration and government, is greater independence, but at the same time greater responsibility. Thus must manifest itself in greater initiative in obtaining resources at the regional level, and in rational management, and not only in independence in the distribution of resources.

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POLAND

## BRIEFS

MOTORWAY STRETCH COMPLETED--A ceremony of handing over for use of a 35 km-long stretch of the Wrzesnia-Slugocin motorway was held in Wrzesnia today. The cost of this investment has amounted to over 10 billion zlotys. During the ceremony, in which Wlodzimierz Mokrzyszczak, Augustyn Kogut, and Janusz Kaminski participated, among others, State Polish People's Republic 40th anniversary and ministry medals were handed to the merited road construction workers. [Excerpts] [Warsaw Domestic Service in Polish 1300 GMT 9 Oct 85 LD]

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